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SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER

Theodore Roosevelt

Vol. XVI No. 1

Washington, D. C.

January 4, 1932

BURN OUT OR RUST OUT

By Roy Headley, Washington

Discussion of retirement questions and consideration of the relevant facts of our experience to date bring out considerable testimony to the effect that our work is very exacting, that men tend to burn out at an early age. There are the physical and nervous strain of an occasional hard fire campaign and the discomfort and hazard of the occasional overnight camp made in the rain and sleet. Less spectacular but perhaps more important is the nerve strain of working under tension under circumstances far removed from fire fighting or camping in the rain. We all know how quality and quantity of output can be and often are increased when a situation tightens up the tension. There is also the wearing effect of searching for the answer to some pressing official question during the hours when the god of sleep just will not answer petitions addressed to him. Then the vicissitudes of ordinary Forest Service travel play a part in the wear and tear on field going men whose work requires trips of more than a day or two at a time. There are sudden and frequent changes in altitude; the sweaty climb to the lookout with one's heart trying to jump out of his shirt, then the chilling time on top; a meal missed occasionally; most every night spent in a different place and under different conditions; cold trains and hot trains; cold winds and hot winds; impossibility of dressing suitably for all the varieties of weather, altitude, and work encountered; the lack of rest and relaxation one gets at home among his familiar books and playthings and playmates; the insidious strain of being "company" evening after evening; etc. etc.

Which leads to the natural questions - "Why should we permit them to burn themselves out so early? Why not adopt as Service policy that motto which the IWW used to chalk on barns and the ends of logs - 'slow down'?"

Well, why not? Why take ourselves so seriously? Which leads to another very practical question - "How are you going to do it?"

Consider the men of spirit. The others don't matter. They won't burn out from overwork. Consider the men of spirit interested and absorbed in their jobs. Most men of the Service are that way. How go about getting them to slow down? No one told them to work so hard. If they had turned back after seeing a quarter of a fire perimeter instead of the whole of it, no one probably would have bawled them out for inadequate knowledge of what was going on. If they had been clockwatchers they would not have been criticised for it nor given a lower efficiency rating on that account. Give a spirited man more assistants and you sometimes make his job heavier instead of easier - he sees more opportunities to attain objectives he has in mind and redoubles his efforts. Tell him to be careful, to ease off a bit - what luck do you have, if any?

If one could be sure to put his conclusion at the end instead of at the beginning of his inquiry it would be profitable to study the records of spirited men who like their work, in other occupations. Possibly they burn out before they rust out just as in the Forest Service.

"UP IN THE AIR"

By Howard R. Flint, R. 1

In 1925, the first use was made of airplanes for fire control in Region 1. The planes came to us unasked and with a warning that we should probably find them useless for our purpose. The two old Army DeHavillands, 1917 models, with wooden fuselages and 400-horse-power Liberty motors, arrived in Spokane about July 4. The task of organizing and trying to make some use of this new gift from the Gods (of War) fell to me.

With lots of doubt as to its practical value and a great deal of just plain scare, I made arrangements with two enthusiastic young pilots for a trial flight. It convinced me that there might be something real in discovering, mapping, and reaching fires from above if one forgot he was flying and really learned something about how to do the job. Next day, this faith was somewhat shaken, for I saw a motor quit without warning and dump my junior pilot and a National Guard plane into Spokane River. Freng, the pilot, swam ashore and the paper mill crew fished out the crate -- a total wreck. A new infection of doubts was contracted.

In the seven seasons since that time, backed up by a little real support, a great deal of discouragement and some ridicule, I have seen the airplane slowly taking a definite place in our work. It has come to stay.

In the fall of 1925, after having taken a number of kodak photos from the air, I was impressed by the great possibilities of making forest maps by this process. After many rebuffs, but aided by the able help of Jim Yule and Mr. Norcross, I succeeded in getting hold of most of an old Army Fairchild K-3 mapping camera at the close of the 1926 fire season. We photographed 64 square miles in the Kaniksu one Sunday afternoon that fall and Messrs. Yule and Cool demonstrated beyond doubt that valuable forest maps could be made by that process. Since then 600 additional square miles, some of them among the toughest in R-1, have been photographed and are now being mapped by that process. Why not? With equipment -- all borrowed, of course, -- now available in Spokane, two townships anywhere west of the Divide in R-1 could be photographed in one clear summer day and the prints, 230 of them, could be out by evening of the next day.

Five years ago the clearing of transport landing fields for moving men and supplies into the back country was urged. It was uphill business. A landing field would cost as much as a mile of road. But now, at the close of 1931, we have reasonably good transport fields at Big Prairie, Flathead; Moose Creek, Selway; Elk City and Dixie, Nezperce. Several others are well advanced in construction.

In the fall of 1929, a Forest patrol plane was landed at Big Prairie in the Flathead -- our most remote and isolated ranger headquarters. The field was then a natural one, fit only for light equipment. The plane which came for me a week later brought in about a hundred pounds of fresh fruit and vegetables for Ranger and Mrs. Thol -- the first they had had during the season. In 1931, airplanes delivered to Big Prairie field 116,000 pounds of freight, including a lookout house, telephone wire, eggs, and what not. They also carried in 73 passengers and brought out one injured man to the hospital in hours instead of the days it previously would have taken. Supervisor Wolfe, Flathead, says in his report:

"Using last spring's comparative costs of airplane freight hauling from Missoula as

against railroad freighting from Spokane to Citadel, trucking from Citadel to Spotted Bear and packing from Spotted Bear to Big Prairie, a saving was made on the transportation for the Big Prairie District in the amount of \$1,474.68 for this year. In addition to this there was no spoilage or damage to supplies and equipment delivered by airplane, which is also an important saving.

"Airplane freighting made our living conditions much better than before by making it possible to supply bread, fresh vegetables, eggs, and meats to the Big Prairie crews, which should result in a meal cost saving on 18,560 meals served on the District.

"On August 17 and 18, two bad lightning storms covered the district with some 35 to 40 strikes in each storm, which set 7 fires out of the first storm and used up practically all of the organization's man-power on the fires that actually were put out and looking for fires that went out and for strikes that we expected to be fire starters. Airplane service made it possible to place 14 extra smokechasers on the Bartlett Field, for distribution, within one-half day (time includes hiring of men), as compared with the 2½ days required for their arrival by any other available means of transportation."

Perhaps the toughest of the pioneer days are over in aerial forestry. The future may be more in the air and less "up in the air." - R. 1 Bulletin

A GEORGE WASHINGTON MEMORIAL FOREST DEDICATION

By S. E. Schoonover, R. 9

On October 19, 1931, as I was pouring over the accounting ledgers, the Regional Forester delightfully surprised me by suggesting that the thumbed books be laid aside and that I accompany him to Taylor County, Wisconsin, to attend the formal dedication on October 20 of the first County George Washington Memorial Forest in Wisconsin. We left Milwaukee in the "Baby Lincoln" at eleven o'clock. The day was indeed beautiful. North from Milwaukee for nearly 200 miles, we traveled through rich farms with their large barns and silos and contented herds of Holsteins. The country was rolling and abounded in thrifty shade trees, woodlots, green pastures, and corn in the shock, which presented a wonderful picture of this country's rich farm resources. As we approached Medford, Wisconsin, the County seat of Taylor County, it was very apparent that there was a gradual transformation of the rich farm lands toward rough, rocky, marginal lands with an increasing acreage of brush and cut-over land, and second-growth timber.

Just beyond Medford we entered a truly desolate country of hills, rocks, sand, brush, stumps, poles, saplings, and burns - a typical devastated forest country with only here and there an isolated farmer trying to eke out an existence on a small clearing of decidedly sub-marginal land. Yet it was a beautiful sight. The early frosts had turned the foliage of the aspen, ash, oak, maple, birch, basswood, and tamarack into a display of colors unequalled on canvas. The sprinkling of white spruce, cedar, Norway pine, and jack pine with their varied shades of green against a background of gold, yellow, brown, red, crimson, scarlet, and silver made the picture complete. The sad part of this perspective was in the revelation that these colors came from the scrub or baby trees and saplings, rather than the stately timber which delights the Forester's eye.

In this large terrain of low value, cut-over, and burned land, extended perhaps 25 to 35 miles wide and from 100 to 150 miles long, the larger part of Taylor County is located. In this County also is located the new proposed Mondeaux National Forest Purchase Unit. Along the main concrete highway, a tract containing about 1,600 acres was donated to the County for reforestation purposes as a George Washington Memorial Forest. Through the untiring efforts of the County Agent and the cooperation of an unnamed philanthropic American interested in reforestation, 74,000 spruce, white and Norway pines were planted on approxi-

mately 125 acres. Eventually the entire area will be planted to desirable species which once beautifully graced the territory.

Approximately 700 people came in 135 cars and trucks to the dedication of this Memorial Forest. One marveled where this large number of people came from; yet it was very apparent that the day was a big event in the lives of many of these settlers and their children. Nearly all ages and nationalities were represented, and the highway for a mile was blocked with autos and people. After the exercises, the crowd moved over into the forest area, and each person planted a tree. The high light of the occasion was the planting of a beautiful three-foot white pine by the present chairman of the County Board. He is a man nearing 85 years of age and had been Chairman of the County Board for over 25 years. This gentleman logged off a beautiful stand of white pine timber from a part of the area in the Memorial Forest over fifty-two years ago and now had the honor of planting the first tree following the dedication exercises.

IF WINTER COMES

By E. N. Munns, Washington

You have previously been warned that rain is coming! It may be of even more interest to you to know that some there are among those daily reading the heavens and press-agenting the coming of summer winds or winter sleet who believe that the prophets will soon be able to tell when winter comes and how much, years ahead of the event. Of late it appears that some weather prophets have shown signs of having been inoculated with the bug, disease, or enzyme known as "statistics," an affliction which some foresters avoid carefully lest, so inoculated, logs will be reduced to mere logarithms and forests to formulae.

It so happened that one of these optimists who forecasts rain and snow on the all too perfect days that greet the inspecting Regional Forester, fell victim to one of these statistics while locking over several ponderous volumes of data. After then, nothing could stop him from trying out his hunch that in long-time weather records there were definite indications of regular and systematic cycles. He applied the theory of probabilities to the data and discovered that variations in the weather are not due to some happy-go-lucky chance of fate, but are the result of definite operating factors which perform in a more or less systematic manner. Of course, says this to-be-pitied wizard of formulae and slide rule, some small minor mishaps such as a cold September morn are not evidences of a real climatic cycle. For that matter, neither are the month to month variations evidences of cycles of rainfall, temperature, humidity, or whatever else you prefer in your weather. But taking the years as they come, good and bad, there is a certain amount of evidence that the weather comes in cycles and these, mathematically speaking, show periodic trends. The weakest cycles occur every two or three years. In the five to six year periods they are like tiny heart beats, but you can positively feel them pulsate from 22 to 33 years; and all of these are but little tremors in a long cycle which extends over a period from 45 to 55 years. Going down one of these long cycles would be like taking a ride down a figure 8 in one of these so-called "amusement parks" with all the minor ups and downs, which are more downs than up, till the bottom is reached. Only in the case of the weather, you must go back to the top over the same route you followed coming down.

Now, lest all this seem a fantastic dream of a disease-ridden brain, let us see what the magician of the Medicine Hat really did. He found that by using part of the weather data for certain stations with long-time records, he worked out what it should be for the other part. His results were close to 60 per cent of the actual value for any one year and over 80 per cent correct when several years were averaged. And lest the idea that deep

sea temperatures are correlated with weather conditions still seems a bed-time story, the values derived by this cyclic method and the deep sea method were almost the same.

Now don't crowd boys! Stand back and give the statisticians a chance. They've told you what your chances of living to retirement age are, and now they are going to tell you when to buy your rain coats. Give them time and we'll find out yet that sun spots mean more than a decrease in solar heat. We'll find out the cycle when we should plant or, better yet, when not to plant up our burns and wastes. We'll find out when we can cut our forests heavy and still get reproduction. We will find out when we need extra fire guards and when we don't.

But in the meantime, let's keep those weather records as nearly perfect as we can. No telling when we may want them and want them badly. And then, we may find ourselves kicking one another because of inaccuracies or blanks, or because we didn't keep any weather records at all.

RESULTS

By R. D. Forbes, Allegheny For. Exp. Sta.

There is something pretty thrilling about the circumstantial account by Mr. Hopkins, in the minutes of a recent Service Meeting, of what he found growing on old Forest Service sale areas. After all, it is the man who wields the marking hatchet on timber sales that is privileged to practice real forestry in the woods. The rest of us, no matter what our positions in the Service, are all merely accessories before or after the fact. Fifty years hence we will not be judged by the perfection of our administrative machinery at this time, nor by the brilliance of our research, but by the timber that is growing on lands logged under our supervision. Most of us have marked a little Forest Service timber for cutting in our day, and I submit that nothing we have done as professional foresters should be of greater interest to us than the condition of the areas we have marked. Mr. Hopkins has, on the whole, drawn an extremely pleasing picture of the results of our joint labors, but Will Sproat's article in the Journal of Forestry for March, 1930, was not such pleasant reading.

Whether we mark well or ill, I should like very much to know that a record is kept on every Forest Service timber sale of the precise area which is marked by each man, together with the date when he marked it. There would be a tremendous thrill in being able to return to a scene where we once actually practiced forestry, and being either chastened or rejoiced by what we find there. Perhaps, also, the knowledge that each man would ultimately be sure of credit or blame for what he had done, would help to increase the enthusiasm and interest of those who are now marking on Forest Service timber sales. What about it, Forest Management?

THE KAIBAB SQUIRREL

By R. R. Hill, Washington

Requests frequently come to the Forest Service for specimens of the Kaibab squirrel. This squirrel is of great interest biologically, because of its conspicuous ear tufts, its graceful and attractive appearance, enhanced by its conspicuous bushy, white tail, and its very limited distribution -- being confined to an island-like area of Western Yellow Pine forest about 70 miles long by 35 miles wide on the north side of the Grand Canyon in northern Arizona on the Kaibab and Powell Plateaus. Dr. E. W. Nelson, former Chief of the Biological Survey is authority for the statement that it evidently is derived from the same species as the Abert squirrel, which it closely resembles and which lives in the pines on the south side of the Grand Canyon visible from the north rim less than 15 miles away. The powerful factor of isolation imposed by the Canyon is thought to be responsible for the difference

in characteristics between these two now distinct species. The seeds and the tender bark from twigs of the Western Yellow Pine provide the principal food supply of the Kaibab squirrel. It is doubtful if this species would live where this particular food was not available. The Abert squirrel also eats the seeds of Douglas fir, pinon pine, and of various other plants, acorns, roots, green vegetables, mushrooms, birds' eggs, and young birds.

Recently the Kaibab squirrel has shared attention with such important matters as world disarmament, settlement of the China-Japan dispute, the problem of a running mate for President Hoover in the 1932 campaign, etc. Last week a request came from Secretary of State Stimson for some of the Kaibab squirrels for the bird sanctuary at Phillips Academy, Andover, Massachusetts. This week a request from Mr. C. W. Miller, Curator of the museum at the State Teachers' College of Hays, Kansas, transmitted through Vice President Curtis, was referred by Secretary Wilbur to the Forester for a permit to take one of the Kaibab squirrels for the School's museum. Mr. Miller has made arrangements with Dr. Blake of Hays "who...is a great hunter and is going to visit the West in quest of large game and will go and get me this squirrel. Can you arrange for it, please?"

COMPARATIVE STATEMENT OF OUR TIMBER SALE BUSINESS F. Y. 1931

By Howard Hopkins, Washington

A brief summary of the National Forest timber sale business during the fiscal year 1931, exclusive of timber settlement, timber trespass and turpentine sales, can best be given in the form of tables as follows:

Statements of Timber Cut and Timber Sale Receipts, F.Y. 1931

Region	Timber Cut M Ft. B.M.	Timber Sale Receipts	Per Cent Decrease in Receipts in relation to F. Y. 1930 (1930 Base)
1	85,836	\$332,133	- 31.6
2	131,017	334,310	- 28.2
3	72,796	172,239	- 38.1
4	64,382	127,950	- 17.7
5	263,353	648,909	- 45.3
6	331,392	610,605	- 45.2
7	55,243	219,218	- 56.7
8	30,690	36,982	- 60.1
9	<u>17,906</u>	<u>32,706</u>	<u>- 37.5</u>
Grand Total	1,052,615	\$2,515,052	- 42.0

There were four National Forests which had timber sale receipts in excess of \$100,000 each during the fiscal year 1931 in comparison with thirteen Forests in this group for the fiscal year of 1930.

The honor roll from a fiscal standpoint is as follows:

Region	Forest	Amount Cut * M Ft. B.M.	Timber Sale Receipts
5	Sierra	96,781	\$257,066
5	Lassen	62,654	189,389
6	Olympic	82,718	180,931
1	Coeur d'Alene	24,072	142,569

* Exclusive of S-22 Sales.

Honorable mention in this connection should be given to the Kaniksu, R-1, and the Stanislaus R-5 with timber sale receipts of \$94,638 and \$91,630, respectively.

The trend of the timber sale receipts since the Fiscal year 1915 may best be shown by the following table which is based on alternate years for the sake of brevity;

Fiscal Year	Total Timber Sale Receipts	Relation to Total Timber Sale Receipts of F. Y. 1931
1915	1,164,008	46%
1917	1,595,873	63%
1919	1,503,367	60%
1921	1,694,737	67%
1923	2,641,244	105%
1925	2,858,652	114%
1927	3,206,833	128%
1929	4,050,473	161%
1931	2,515,052	100%

MORE REGARDING THE STAMPS IDEA

Reference is made to Ranger Quackenbush's article "New Stamp Wanted" in the Service Bulletin of November 9:

Mr. Quackenbush evidently does not know that the stamps of the United States usually portray only outstanding men and women of the Nation or commemorate some historical event. They are never used to advertise Government bureaus. The new issue that is to appear in January is in commemoration of the George Washington bicentennial and will carry twelve different portraits of the Father of our country, together with Mount Vernon scenes on the stamped envelopes.

The idea of fire slogans for special letter cancellation dies is not new. Dies such as referred to by Mr. Quackenbush originated in the office of information, R-2, March, 1919, and were successfully used that year and the next in a number of western Regions. Permission for the use of these dies was revoked in 1920, the Post Office Department adopting the idea of featuring legends advertising the most important matters concerning the postal service. We notice, however, that recently the Red Cross has been able to obtain special cancellation dies, so if the Washington office gets busy possibly we can again secure the approval of the Post Office Department for the use of fire slogan cancellation dies during the summer months. Many people question the value of such cancellation slogans, but it is of interest to note that dies used in the Denver and Colorado Springs post offices during the summer of 1919 resulted in over twenty-eight million pieces of mail being sent to all parts of the country bearing fire and recreation slogans. -

W. I. HUTCHINSON, R-5

WONDERS OF THE WORLD

The San Francisco Call - Bulletin recently carried in its Oddities of the World section a drawing of a husky individual who was obviously watching a murderous stroke of lightning as it flashed through the timbered country in front of him. The caption beneath the drawing stated:

"By looking at a distant storm Roy Headley, veteran forester, can tell whether it carries lightning that might start a forest fire."

DEPARTMENT OF AGRICULTURE EMPLOYEES RARELY

TAKE FULL LEAVE PRIVILEGES

Large numbers of Federal employees in the service of the Department of Agriculture in Washington have not taken sick leave during the last eight years, according to official information just made available.

It also is stated officially that the average amount of sick leave taken by the Department's employees on duty in the capital was 6.9 days per person during the last fiscal year.

These statistics have been compiled in the Department's Office of Personnel and Business Administration.

"Although it is commonly reported that Government employees in Washington take 30 days of annual leave and 30 days of sick leave each year with pay," declares Dr. W. W. Stockberger, the Department's director of personnel and business administration, "the records of the division of appointments in the Department of Agriculture do not bear this out.

"During the last eight years, men and women working for the Department of Agriculture in Washington took an average of 27 days' annual leave and $7\frac{1}{2}$ days of sick leave, a total of $34\frac{1}{2}$ days' leave with pay, each year.

"It will surprise many to know that an average of 27 per cent of the Department's employees in Washington did not take any sick leave during the last eight years. Furthermore, only 4 per cent of the Washington personnel made use of the entire allowance of annual and sick leave which may be granted.

In reviewing personnel matters relating to operation of the Department of Agriculture during the past fiscal year, Doctor Stockberger points to the fact that 28,163 persons were on the rolls of the Department on June 30, 1931. This number, he declares, is the greatest in the history of the Department. "At the close of the fiscal year," he states, "2,924 more workers were performing agricultural service for the Federal Government than at the peak of activity during the World War." -

From the Federal News.

NEW du PONT PRODUCT

E. I. du Pont de Nemours and Company has developed a chemical compound known as Lignasan, for use in the treatment of air-dried lumber to control sap stain or "blue stain" and to prevent mold. Estimated annual losses to the lumber industry resulting from stain and mold total \$10,000,000. Tests by more than 100 mills demonstrate that Lignasan preserves the bright, natural color of lumber in storage. The treatment is applied in cold solution by dipping or spraying and has been found to be effective on pine, sap gum, black gum, yellow poplar, magnolia, and certain other hardwoods. The cost of the treatment is approximately 12 cents per thousand feet of lumber, board measure. - From the Wall Street Journal.

DID YOU KNOW

The Ailanthus tree or the Chinese Tree of Heaven, now a pest in many parts of the United States, was first introduced into the country about 1734 and a tree planted near Philadelphia. Later (1820) it was introduced into Rhode Island and by 1841 the tree was commonly offered for sale by nurseries throughout the eastern United States. Some of the western trees date back to the time of the gold rush. - E. N. Munns.



SERVICE BULLETIN

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Theodore Roosevelt

Vol. XVI No. 2

Washington, D. C.

January 11, 1932

EIGHTY YEARS OF NORDIC SUPREMACY

By E. N. Munns, Washington

Our present population is wonted to look upon the Nordic settlement of western America with some pride. We point with expanded chests to major cities, watered valleys, factories, mills, and mines and exclaim of the wrath this has created since 1850.

The California Forest Experiment Station has found evidence, however, of some striking changes brought about by man in only a life-time. By fire and by cutting, first by the miners, then by the settlers, sheep and cattlemen, and by others who have hacked away at the forest or burned it for one reason or another, the lower edge of the western yellow pine forest has been forced backwards from the valley toward the mountains. And this process of shoving the forest backwards has not been an inconsequential matter: it has been a major catastrophe.

Thus, in Eldorado County where once bearded miners hung Chinamen for washing gold instead of clothes, the lower edge of the forest has been shoved back some 15 miles in distance and up the slopes from about the 1,000 foot contour to about the 2500 foot level. Among the evidences in this section of California which give indisputable proof of the loss of the forest, are two cemeteries containing 60-year old second growth pine entirely surrounded by woodland. Furthermore, there are innumerable instances of boundaries between these types coinciding with section lines or property line fences. Although such sharp demarcations are commonly seen on the type maps of inexperienced (and sometimes experienced) forest officers, such actually existing sharp type demarcation on land lines can exist in nature only because of man's disturbance.

In this woodland, the digger pine, the Douglas and interior live oak intermingled struggle for existence with poison oak on sites the fertile top soil of which reposes on the bottom of the Pacific. And with all regard to those who would make silk from our little-used species, it is doubtful if any of the stands now present would ever equal in value those which might have continued to grow if a soil cover had been maintained. That such original forests were not of the worst there is no doubt, for site determinations show a potential yield of 24,000 board feet per acre in 60 years. This is more than some fine aspen or Jack pine lands could produce, and perhaps better than many much advertised stands now in the National Forests.

"BURN-OUT OR RUST-OUT"

By Peter Keplinger, Washington

The article under the above title published in the January 4 issue of the Service Bulletin is all right in what it says, but I'm wondering if there is any scientific basis for what it implies. While it is true that it is difficult to restrain men who are interested in putting something over, I wonder if it is equally true that the man does most who works the longest hours.

In what number of hours can a man accomplish his maximum? There is no question of so great or universal importance, yet there is no important question about which people in general know so little. It has been too generally assumed that production is in direct ratio to hours worked.

Yet when it comes to some specialized jobs we know that it isn't true. In baseball we do not expect our pitchers to work ten hours a day - not even every day. Take the best pitcher in the game and start him every day and how many games would he win in a season? On the other hand, if he didn't get chances enough he couldn't win. There is a certain number at which each man will produce his maximum.

It used to be quite generally accepted that laborers should be worked twelve hours a day, yet production in those days was very low. Contrast that with the experience of a number of firms during this depression; in order to spread the work and create more jobs they reduced the hours from eight to six, but in doing so they defeated their own purpose, since output increased without taking on more men. Evidently they had been working too many hours. A great many companies have experimented with rest periods and found usually that they increased production.

Another thing, that is well known in sport but seldom considered in industry, is warming up. No sprinter would be asked to run without warming up. It would be suicidal in baseball to send in a pitcher without warming up. In tennis, in football, in billiards, in fact in all sports, it is taken for granted, but in the more serious field of contest called business it is seldom heard of.

One other thing that has been proven in the laboratory may serve as a transition to what I want to say later. We talk a lot about muscular fatigue, but in reality there is no such thing. Muscles are controlled by the brain and nerves. They never work without a nerve impulse to excitate them. Now experiments have proven that the brain and the nerves tire first, or, to be more exact, the brain first, the nerves second, and the muscle last. Use a muscle until it is so tired that you literally cannot move it again; it is the nerves in reality that are tired. By means of an electric excitation the muscle can be made to go on working almost as well as when fresh.

But what about brain workers? All the examples given above are physical. Can they go on working forever? There is not in reality the distinction between the two that we used to think. They are so closely tied together that the same rules govern both. The brain worker, to do his best must be in condition, he must have training, he must have his warming-up period before great effort, and he can work at top speed for only a short time. If he oversteps the bounds and tries to do too much, he goes stale and is incapable of real accomplishment - he is like the pitcher who tries to win a game every day, he ends up by not winning any, or by being sent back to the minors. Dr. Lancaster who did considerable research some years ago at Clark University, decided that brain workers can accomplish most by working only three hours a day; but that means real concentrated effort.

Now if there is any truth in the foregoing (which are only a few of the things which psychologists have learned that you should know) and if you are ambitious and really want to

accomplish anything, you should try to find out something about yourself. What is your mental warming-up time? How long can you work under high pressure? How long a let-down do you need to recuperate? Just how and when do you do your best work?

If you were an athlete you would realize the importance of all this but being only an executive you probably won't. Yet it means more to you in terms of success than it does to him. The athlete knows better than to enter a contest without warming up. You should know better than to make an important decision or enter an important conference without a mental warming up. The athlete knows that sloppy work will ruin his form; you should know that your worst enemy is sloppy work habits. The athlete knows that he can get nowhere without constant training but also that he must be careful not to overtrain. The executive should know that the same rules apply to mental athletics. In fact if you want to break a few records as an executive you will find the best chance to do so not in working twenty-four hours a day, but in following pretty much the routine that other record breakers have followed - learn the game, the best techniques that have been developed, train hard, keep in condition, keep in form, and be ready with the best you have as the contests come from day to day.

FOREST FIRES AND FIREWORKS

By C. R. Tillotson, District Inspector Northeastern States

An idea which appears to have real merit was recently sprung on me by H. H. Daub, Chief of the Fire Department of Pembroke, Mass. In Massachusetts the Chief of the Fire Department is often the forest fire warden. That is true in the case of Chief Daub. Like many fire wardens he has been faced with the situation of arriving at a fire and finding it spreading so rapidly that he is unable to control it with the crew and equipment at hand. He is obliged to send a man out to telephone for help. The nearest telephone may be a mile or two away, which means that precious time is lost in sending out the call. The National Fireworks Company has a plant at West Hanover, Mass. Its president is George J. J. Clark. It occurred to Chief Daub that a system of signaling by means of fireworks might be devised which would be practical, effective, and time-saving. He talked the matter over with Mr. Clark and the two of them believe something can be worked out. Briefly, Mr. Clark thinks a relatively inexpensive bomb type of fireworks can be devised which upon exploding high in the air will release a small parachute to which a black smoke-producing cartridge is attached. Upon arriving at a fire, a fire warden could send up one bomb if he were able to handle it, and two bombs if he needed help. A system of signals covering a variety of purposes could, in fact, be worked out. If one bomb were sent up, the lookout man who reported the fire would know that the warden was on the job and was able to handle the fire; if two were sent up, he would know that help was needed and would immediately telephone for more men and equipment. While this matter is still in the speculative stage, it seems to have real possibilities.

STATISTICS

By E. E. Carter, Washington

Each year Census figures, "preliminary and subject to revision," for lumber cut in the previous year are issued late in the fall. The figures for 1930 had the date line of December 11, 1931. The lumber industry will glance at the total cut for the year, 26 billion feet, with a regretful sigh and think that it represents about the half way mark in the slide to the bottom of the depression. Maybe there are other points of interest, however.

Of 14 States having a 1930 lumber production in excess of 500,000,000 board feet, 11 border salt water. The other three are Arkansas, Idaho, and Wisconsin. Of seven States each having a cut in excess of a billion feet, and, as a group, producing nearly 60 per cent of the total cut, none is "inland," although Mississippi and Alabama have only short salt water frontages.

Of the States east of the Great Plains and north of the Ohio River, Wisconsin is the only one with a lumber cut in excess of 500,000,000 board feet. In round numbers, the West cut 12,190,000,000 board feet; the South (including West Virginia, Maryland, Missouri and Oklahoma) cut 11,338,000,000 board feet, and the North only a little over 2,500,000,000 board feet. As has often been said in the last two years, the lumber industry has "gone West."

But the West is a big country, and its figures are worth looking at again. Nearly 90 per cent of its 12 billion foot cut came from its salt water States, Washington (5,502,129,000 feet), Oregon (3,654,075,000 feet), and California (1,514,263,000 feet).

The State of the Magnificent Sequoias is reconciled to being exceeded in lumber cut by its sister States on the Pacific, but still winces at the thought that even one Southern state (Louisiana, 1,606,718,000 feet) beat it in 1930. Never mind, Angelinos, you left Florida, with its mill output of only 876,000,000 feet, far behind - in fact, only just ahead of Idaho (840,000,000 feet). Of course, as California continues to get bigger and [The Editor called a halt here].

The North has to take what comfort it can out of comparisons, State by State, with the rest of the West. Little Rhody has a sawmill or two in the suburbs of Providence, and consequently had a lumber cut of 7,000,000 feet, exceeding the output of Utah by a day's cut for a good-sized mill. If a couple of the Medicine Bow's tie mills had run another week, the cut of Wyoming (25,132,000 feet) would have equaled that of Illinois (25,212,000 feet), but passing Connecticut (20,525,000 feet) was probably enough for one year. Vermont not only lost a representative in Congress, but also failed by about a million feet to match Arizona's cut of 95,497,000 feet. New York, with 109,617,000 feet and Ohio, with 108,198,000 feet, did their share in flooding the market by each cutting nearly as much as Colorado (54,688,000 feet) and South Dakota (59,464,000 feet) combined. New Mexico defied the depression with a cut of 142,885,000 feet, but New Hampshire went further with its 181,702,000 feet. The 1930 cut in Montana was 90,000,000 feet less than that in 1928, but its output of 296,990,000 feet was only a little less than the combined lumber production of Maine (222,104,000 feet) and Massachusetts (82,101,000 feet), with pulpwood excluded.

STEAK FROM WOOD LIKELY; PLANK STEAK, SO TO SPEAK

(An article by John J. Daly, in the Washington Post)

Modern man has dazzled the world with his inventions, but they are as nothing to what the future holds.

No doubting Thomas can obstruct progress by saying, "Everything is done that can be done." While man has "conquered" time and space, the earth, the air and the sea, the truth is that the new civilization is just getting started.

Now comes Dr. Friedrich Bergius, the Berlin chemist, winner of the Nobel award for chemistry, with an improvement on old methods. He has a plan to convert wood into an edible food, his first objective being a plank steak.

It probably will be done. The good professor, now that he has the money to carry on his experiments, needs only time and patience - for which no one yet has invented substitutes. Emerging one day from his laboratories, the world will stand by dazzled when the conquering chemist brings out a sizzling sirloin steak, made from a slab of cedar, a hamburger cut from the limb of the ham tree, a round steak from a log, or wieners chipped from a dogwood.

The effect of this chemical change on the products of nature will be startling and far-reaching, changing the habits and modes of living for mankind in all parts of the world. Instead of raising cattle, most of the ranchers will become foresters. Texas longhorns will disappear from the range and cowboys take to the hills, their lariats left behind them. The Argentine no longer will specialize in beef and the American Forestry Association will devote its leaflets to recipes for extracting porterhouse from California redwood, and filet mignon sawed from the loin of an oak.

Carpenters will become butchers and the Chicago stockyards will no longer spread their aromas upon the lake-shore air. Meat packers will be eligible for membership in the ancient order, Woodmen of the World.

Life, in all its ramifications, will become simplified, in more ways than one. Transformation of a pine log into the equivalent of a juicy T-bone steak, by the magic of chemistry, will spur on other inventions so that synthetic meals may be spread and served at any time or place. A hungry man might easily make himself a tasty sandwich out of a cigar-box top and, in a pinch, make doughnuts out of doorknobs.

With no need of putting in rush orders at the corner delicatessen when guests unexpectedly arrive at the dinner hour, all the modern housewife need do is to have the maid break up a packing box or throw a few extra sticks of kindling wood on the broiler - for chops.

Will wonders never cease? Certainly, the old declamation will have to be rewritten:

Woodman, spare that tree!
Touch not a single bough!
In youth it nurtured me
With plenty of good chow.

Should dad come home with a ravenous appetite and call out of turn for his favorite foodstuff, the order given by mother will be quite clear and simple:

"Johnnie, run out to the woodpile and bring in a log. Papa wants a steak."

ACCOMPLISHMENT

Observations on the Black Hills National Forest have led the local Forest officers to believe that large insect infestations started some years back from a single tree or small group of infested trees. High priority is given on this Forest in work plans to insect control in order to nip attacks in the bud.

A recent infestation of the Black Hills beetle (Dendroctonus ponderosa, Hopk.) occurred on private land just outside the Black Hills Forest boundary. Ranger Cochran, by continually bringing the infestation to the attention of the land owner, and by educational work on how the job could best be done, was able to have the owner cut all trees with active infestation. A total of about 1,000 infested trees were cut and the slabs burned, with brush piled and burned. An inspection of the area by a representative of the Bureau of Entomology this summer showed no newly infested trees. The infestation was controlled without cost to the Government, except in the educational work mentioned above, and before it spread to the adjoining National Forest timber.

An infestation partly on Government land and partly on private land covering approximately 640 acres on the Bearlodge District of this Forest was handled by application of the Administrative Use Regulation. District Ranger Riley located a man with a small portable sawmill who agreed to handle the trees. Under special agreement with the owner infested trees on private land were treated the same as on Government land. All infested trees were marked for cutting by the District Ranger. The operator also peeled the stumps, piled and burned the brush, and burned the slabs. More than 90 thousand feet, board measure, of logs were handled at a total cost to the Government of 41 cents per tree or 19 cents per acre.

The Limestone District of the Black Hills National Forest had some areas where bug infested trees were too isolated to make any system of disposal by sale or free use possible, even for fuel use. On these areas the District Ranger tallied the infested trees, whenever noted, on a field map and as soon as time was available cut and peeled them. Over 50 trees were so handled on this district last winter.

"SIXTEEN CHAPTERS IN A FOREST STORY" STUDIED BY 6,000 SCHOOL CHILDREN

By Beryl G. Gardner, Washington

During the recent "Forestry Notebook Contest," sponsored by the American Forestry Association in the District of Columbia, the Forest Service gave considerable assistance to the school children who participated in the contest and to the general science teachers who directed the study of the pupils.

At the request of Miss Esther Scott, in Charge of the General Science Corps, for the use of lantern slides, a small set entitled "Sixteen Chapters in a Forest Story," was assembled for use with a specially prepared outline. This illustrated story was calculated to awaken the interest of the children who were competing in the contest, and to give them enough background on the subject of forestry so that they could search out other helpful material. At least one set of slides was placed in each school division in the District, and was passed from one teacher to another. In addition, three sets were loaned to nearby Maryland schools, which, while they did not participate in the contest, found the slides helpful in their fall study of forestry.

Besides furnishing the slides, suitable publications were gathered into sets and handed out to school children, who called in great numbers at the Forest Service, or were supplied in bulk to teachers who requested them.

Pupils of the fourth, fifth, and sixth grades were eligible for the contest. Approximately 6,000 children studied the slides and about 10,000 pieces of printed and lithographed matter were distributed.

Much praise has been received by the Forest Service for the cooperation it gave. The publications and lithographed material were highly commended, and the slides were so helpful and aroused so much interest that further requests for material on lumbering, fire protection, and general forestry are still coming in.

AMOS 'N' ANDY BUY A SAWMILL

Arriving at the office of the taxicab company, Amos is amazed to learn that Andy has sold the assets of the Taxicab Corporation. Amos demands to know how much money was realized, and asks for his share. Andy replies with disdain:

"Dare you is again, Amos. You don't know nothin' about bizness. Nothin' sells for money no mo'. Everything sells for 'stallments. I is done paid down de taxicab bizness as de fust 'stallment on a sawmill."

"Sawmill? Whut we goin' do wid a sawmill? We don't nothin' about runnin' no sawmill, does we?"

"Corse we don't, Amos. De man I traded with done 'splained dat. He said we didn't have to know nothin' about a sawmill to get de bizness. He tole me dat if all de folks in de lumber bizness knew anything at all 'bout nothin', dey wouldn't be in de bizness. He said we wasn't taxicab drivers no mo' — we is lumber magnets."

"We is, huh? Now ain't dat sumpin'? Well, if we is magnets, whut's de next thing we is gonna do?"

"Well, now we is gonna meet wid all the buyers. De mo' buyers you meet, de mo' goods you can sell below cost. De man done 'splained dat de further you sell under cost, de better de mill man whut you is."

"Below cost, Andy. Whut you mean? 'Splain dat cost to me. Whut is it?"

"Don't nobody know whut dat cost bizness is, Amos. Dat's whut de man done said. Cost is sumpin' de lumber men guesses at and sells under. De man what guesses de lowest and sells de most under, gets de prize."

"Whut's de prize, Andy?"

"Well, as I understands it, de lumber man whut sells de lowest fur de longest time, gits a chance to liquidate. Dat's what de man said."

"Dat liquidatin' stuff sho sounds good -- but, Andy you ain't tole me as yet whut we is goin' to do wid dat lumber bizness."

"Well, Amos, as I see de sichyashun, it's like dis. Dere is just two things you can do wid a sawmill. Fust, you can run it. Secunt, you can curtail wid it."

"Curtail, Andy, whut you mean by dat?"

"Dat's easy, Amos. Fust, you runs de sawmill and makes all de stuff you can. Den when de buyers is done bought all dey can pay fur, as fur under cost as you can guess to, dey re-signs away from de market. Den, we begins to curtail. It don't mean nothin', 'cept we knocks off from work. We stops de sawmill, plays a little golf and maybe goes on a convenshun."

"Uh,huh. Now 'about dis curtailin' bizness, Andy. I likes de sound of dat. How long do it last, and how long does we rest like dat?"

"Well, Amos, we curtails till de buyers gets hard up for mo' goods. De lumber man has to watch de buyer mighty close juss fo' it looks like de buyer is goin' to have to pay mo' den dat cost thing, de lumber man rushes to make all de goods dey can and ketches up wid de buyer again. Den befo' any of dem is ready to start in again dey is right where dey wuz when dey started. If you wuz a bizness man you would understan' dat can't nobody beat a system like dat. De man whut sold us de sawmill said dat system wuz de big thing in de lumber bizness. You can see he's right 'bout dat.

"But listen, Andy -- sposen dat de lumber man gits kinder keerless and does dis curtailin' too long, and de goods gets to sellin' over de cost. Whut den?"

"Nobody knows whut would happen den. It's been so long since it was like dat, everybody done forget whut did happen. But ain't nothin' for us to worry about, Amos."

"I guess you is right, Andy."

"Check and double check."

From the Southern Lumber Journal

WHY THE PRAIRIES

"The plains and the openings in the forest are evidence:

"That the Indians customarily burned, every year such parts of the forests as were sufficiently dry to admit of conflagration:

"That these were the only grounds, which, except in rare cases could be successfully burned.

"That wherever they had been for a considerable length of time free from fires, the young trees are now springing up in great numbers; and will soon change these open grounds into forests, if left to the course of nature. Such, particularly, is the fact on the first of these plains, near the Genessee River; and still more strikingly in Bloomfield and Charleston; where the fires have been longer intermitted.

"That in various places the marks of the fire are now visible on the trunks of the remaining trees; particularly near the ground. These marks I have supposed to have been impressed at a comparatively late period, and by fires kindled in the grass.

"That on the borders of these very plains, trees of exactly the same species are now growing in great numbers, and in the usually regular succession of all ages and sizes, within the nearest neighborhood of those on the plains; and that this diversity, perfectly explicable on this supposition is inexplicable on any other.

"That there can be no account given, why the vegetable mould should be so thinly spread over these plains; except that it has been continually consumed by fire; since it exists in the usual quantity in the forests, composed of the same trees, on moist ground, bordering these plains on every side.

"Should it be asked, why there are no such grounds in New England, in which country the Indians also lived, and hunted; I answer:

"1st. The New England oak and yellow pine forests have not been subject to fire for many years.

"2dly. No accounts of their ancient appearance (i.e., the plains) have come down to us.

"3dly. The whole of New England, except the mountains and swamps, was almost wholly covered with oak and pine forests. All, therefore, being capable of annual and easy conflagration, there was no inducement to burn any single part frequently. Yet beside the well-known fact that the Indians kindled the forests yearly for the above named purpose, there are now remaining many proofs of such fires.

"4thly. That within my own remembrance there were in the township of Northampton, spots, desolated in a similar manner. These, although laid waste to an inferior degree, were yet so far destroyed as to be left in a large measure naked. Now they are completely covered with a thick forest. I suppose these grounds however, to have been frequently burned by the English inhabitants; who foolishly followed this Indian custom in order to provide feed for their cattle in the spring." - Dwight: Travels in New England and N. Y. 1821.

PAUL BUNYAN'S RIVAL

By H. E. Smith, R. 8

A good example of injecting efficiency into one's work was illustrated on the Chugach a few days ago while we were surveying a mountain lake for the purpose of determining its area.

While the writer manipulated a plane table from the surface of the ice, at the center of the pond, his assistant, E. M. Jacobsen, mounted on skates and carrying the stadia rod, sped around the edge of the lake in a manner that would make a motor cycle cop look like he was backing up and cause Paul Bunyan's skate-shod hashers to view their performance with chagrin.

Meanwhile, from a rock shelf, a few hundred yards up the slope, a mountain goat watched the performance with mild curiosity.

WHY PESSIMISTS DECRY ADVERTISING

"Willie," said the Sunday School teacher severely, "you shouldn't talk like that to your playmate even if he does provoke you. Haven't you ever thought of heaping coals of fire on his head?"

"No'm," said Willie, "but it's a peach of an idea."

R. 7 Bulletin



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Theodore Roosevelt

Vol. XVI, No. 3

Washington, D. C.

January 18, 1932

WILD LIFE AS ASSET IN ATTRACTING HUNTERS

By Elliott S. Barker, Game Warden, State of New Mexico,
in the U. S. Daily, Jan. 4.

The value of wild life in all its phases, economic, educational, recreational and aesthetic, is being more appreciated each year. Nevertheless, the general public has not awakened to a full realization of its importance.

This importance is so great that drastic steps should be taken, if necessary, to preserve wild life in its natural habitat, even at the expense of removing cattle and sheep from certain portions of the mountain areas to make available exclusive propagation areas for wild life.

While New Mexico's game resources are probably, next to climate, the biggest drawing card the State has, even persons most interested in its economic welfare are prone too often to underestimate the enormous potential value of wild life culture.

The greatest attraction in Yellowstone Park, according to a prominent conservationist, is the geysers, and next to them the bear. At the Grand Canyon the famous deer and rabbit attract almost as much attention as the wonderful work of Nature. So long as game animals can attract so much attention in such settings, possibilities of attraction in their natural habitat are unlimited.

From the economic viewpoint, a single deer is of far more value to the State than a single calf. This comparison is made since New Mexico is a State of great area, a considerable portion of which is devoted almost exclusively to the livestock industry. Each deer killed in the State represents over \$100 actually spent in cash money. A calf at weaning time will bring up to \$25. Every hunter who comes to New Mexico from other States will necessarily spend over \$100 in hotel bills, outfitting, camping, lodging, paying guides, for gas and oil, various necessary commodities and in hiring horses. This money is distributed among a large number of people. It is a valuable asset to the State to have those hunters come here. Last year hunters paid in license fees alone some \$90,000. With the license fee a comparatively small part of their hunting trip, their monetary value to the State can be readily seen.

With the country crying about overproduction of grain, produce, cattle and sheep, we do not hear anyone protesting about too many game animals, except in a few concentration areas, where they are overgrazing the range. Commerce and industry have taken over most of the land in the Nation for their purposes. That is one reason for overproduction. Devoting some of this land to propagation of wild life would relieve overproduction to a certain extent and give the State an increased asset in its wild life attractions.

SERVICE BULLETIN

SALVAGE

By Walt Perry, Deschutes

Sales work on the Deschutes Forest in eastern Oregon for the past year has been largely a matter of salvaging what we could from the wreckage of fires and wind storms. Unfortunately, this had to be done right in the big middle (at least we hope the middle is not yet to come!) of a tremendous slump in timber values, when if you say to a man "Like to buy a log?" he is likely to throw something at you!

First came the Big Spring burn timber, killed in July, 1930, and sure to blue early this summer. Klamath Falls and Chiloquin mill men looked at the timber with us last fall but could not quite get around the 4 to 5 mile truck haul plus a rail haul costing about \$4.50 per M.

The timber was sold for \$.50 per M.B.M. to the Shevlin-Hixon Company, of Bend, who cut it in March, April, and May, salvaging at the same time a much larger amount of their own adjacent damaged timber. From this sale there was scaled 4,130 M.B.M.

Then, the April, 1931, wind storm dropped 8 or 10 million feet right in and around our famous Metolius River summer home area and camp grounds, and then hopped over and swiped 6,000 M. feet in the Crane Prairie - Twin Lakes country where every one of the thousands of fishermen and hunters going to the Upper Deschutes would have to pass right through it. Something had to be did!

The Metolius timber was 40-45 miles from the nearest mill that could handle it; the Crane Prairie - Twin Lakes stuff 22 miles from a small mill that could take a part but not all of it, and 40 miles from Bend.

Metolius River Area:

Under administrative use we gave away 250 M., lying in, on, and between the summer homes at Camp Sherman, to a small mill 20 miles away for promptly removing the logs and cleaning up the area so the home owners could rebuild. With pumps to control fires, all brush and debris was burned as logging progressed.

This timber was widely advertised but no offers received. We contacted small mill owners, gypos loggers, and log buyers from here to Cape Horn. Many were persuaded to look into the chance. Small mill men could not see it -- too short a job -- timber would soon blue -- no established market -- lumber prices too low. Klamath Falls mills offered \$11 for logs at pond. Gypos had to have \$12 to break even. A Bend mill finally offered \$7 at pond. Gypos in flocks looking for jobs. The Road Department afraid oiled roads would ravel under log trucking -- load restrictions severe. Got Chamber of Commerce, banker, and other influential men to help convince Road Commissioner timber must come out to reduce fire hazard and create business. Started a gypo outfit trucking and got out 2,569 M. of the most dangerous. Also, another 477 to the small mill man. Located a small mill on Metolius River to cut material not accessible by truck -- has cut 400 M. and is storing logs this winter in Metolius River.

Salvaged, to date, 3,296 M.

Crane Prairie-Twin Lakes Area:

790 M. feet in a bunch at Twin Lakes, a fishing resort, was sold to Dennis' Mill, 22 miles distant, for \$.75 per M. All brush was piled and burned.

901 M feet along Crane Prairie Road sold to a gypo at \$.50 per M. and trucked to the Dennis Mill.

Along Crane Prairie-Deschutes Bridge Road sold to a gypo 375 M. at \$.50, also for Dennis' Mill.

The various other gypo loggers a total of 2,462 M. feet of scattered timber was given under administrative use to be hauled to Deschutes River at Pringle Falls and then driven some thirty miles to Benham Falls. The Shevlin-Hixon Company paid \$5 at Benham Falls for these logs.

Timber salvaged, 4,528 M. feet.

Tom Butte Burn Area:

The Tom Butte fire killed 793 M. This was sold to Brooks-Scanlon Lumber Company at \$.50 per M., marked and estimated on the stump, but will not be cut until next spring. This is to be trucked eight or nine miles to their steel.

Pine Mountain Burn Area:

Lastly, the Pine Mountain burn put another 2000 M. on our hands for salvage and this was complicated by a heavy beetle infestation. Seemed no hope to dispose of it. Finally swung a couple of gypos onto it, under administrative use, who have so far delivered to Brooks-Scanlon steel (8 miles distant) 1,327 M., for which they get \$4.25 per M. All we get is a reduction in fire hazard and, to some extent, bugs. Additional timber will be moved next spring.

Total timber salvaged from blow-down and fires, including Tom Butte Burn, sold but not yet cut, is 14,074 M.B.M.

This sort of stuff is rapidly turning our hair grey, and another year such as this we feel will put us in the checker playing ward.

EXTRACTS FROM R-1 FF DEFICIENCY LETTER

Lightning

But one large concentration of lightning fires occurred. One hundred and three fires were set during one 24-hour period, on August 17 and 18. Of these 77 were on the Lolo Forest. During the 10-year period (1922-1931) only four years show a greater number of lightning fires than the 1931 total of 971. The period of explosive inflammability conditions was enlivened by the starting of 717 lightning fires. Two hundred and ninety of these were in the second period of July. Two hundred and forty-five were in the last period of August.

Man-caused Fires

The man-caused fire load was 157 points greater than the average of the past 10 years, 175 points less than the averages of 1919, 1926, 1929, and 217 points greater than 1930. The following tabulation exemplifies the situation:

	Camper-	Lumber-	R.R.	Incend.	Brush	Smoker	Misc.	Total
	ing	ing						
Ave 21-30	102	22	73	56	43	132	31	459
Ave 19-26-29	166	23	173	52	92	228	57	791
1930	77	8	35	85	27	141	26	399
1931	88	6	54	119	46	239	64	616

It is believed that these comparisons indicate:

1. That the average 1931 camper, lumberman, railroader, and brush farmer is a more careful individual than his brother of 1919-26-29, and that his caution is increasing.

2. That the same is true with respect to the camper, lumberman, railroader, and brush burner of 1931 as against his brother of the ten preceding years.

3. That the stepping up of the same classes in 1931 as against 1930 is a reflection of relative inflammability conditions rather than an indication of a relaxation in carefulness.

4. That increased travel facilities have made a growing risk of the transitory smoker and that the unusual dryness of 1931 (with the resulting ease of combustion) brought this class of fire starter into the limelight of 1931.

5. That the 1930 and 31 increase in incendiarism is the direct result of the economic conditions prevailing during the two years and is a warning signal to be heeded in planning the fire-control activities of 1932.

The marked increase in railroad fires over 1930 is, it is believed, simply a reflection of the relative dryness of fuels. Checks of the Northern Pacific spark arrester (Cyclone) showed it to be functioning acceptably. An out-of-order engine, however, in 1931, was decidedly more of a menace than in 1930, and on three occasions this season such engines showered rights of way with sparks before they could be reported and taken off the line. The N. P. Company was very prompt in abating the nuisances but the harm was done.

(To be continued in the January 25 issue)

FIRE FIGHTERS GAIN ALLIES IN MARYLAND MOONSHINERS

(From the Washington Post)

Southern Maryland moonshiners have gone in for forest fire prevention. They think it is a great idea. This has just come to light in a press release made public by the Maryland State Department of Forestry. And when it comes to fighting forest fires, moonshiners and prohibition agents are just a couple of pals, according to the announcement.

And it all came about in this wise:

Intrepid fire fighters of the State of Maryland last week forged too deeply for their health into St. Marys County's "moonshine district." Mistaken for prohibition agents, they lived to tell the tale, and yesterday were boasting of new allies in the cause of fire prevention.

"It appears that neither bootleggers nor prohibition agents favor forest fires," was the way they expressed it in an official statement on the incident. "Fires mean publicity for the bootlegger, placing him on the run, thereby increasing the difficulty of liquor distillation, and at the same time making more unlikely the Federal officers' chance of catching the man."

The official release, captioned: "Foresters Mistaken for Prohibition Agents; St. Marys Bootleggers Regret Their Mistake," discussed in all seriousness a State Forestry Department's inspection tour through remote backwoods districts of St. Marys. It flaunted, with a touch of braggadocio, a statement from "one of St. Marys chief bootleggers," brought back by the adventuring forest wardens.

"Forest fires prove dangerous to still operators," he was reputed to have said. "Fires attract people into the woods and make it difficult for liquor manufacturers to keep their stilling equipment in secret. St. Marys bootleggers believe in preventing forest fires. When fires occur they must move to new retreats, although frequent moves are wise procedure, as they prevent accurate checks by Federal agents of all likely locations."

Here is how the publicity man for the State Department of Forestry told the story:

"Officials of the State Forestry Department this week, in company with Robert O'Keefe, district warden for Southern Maryland, visited the forest wardens of St. Marys County to inspect the forest protection organization. Upon reaching a remote wilderness community, Assistant Forester Walter J. Quick, Jr., from Baltimore, decided to inquire regarding the prevalence of forest fires, and approached a typical woodland hut for information. A lanky, wild-eyes youth proved noncommittal, and the dark-skinned woman who appeared at the door declared she did not know whose house she was in, why she was in it, who owned the house, or where the owner had gone. Additional questions appeared futile.

"Upon driving a circuitous route to another dwelling, the occupant appeared to have been forewarned and was prepared, proceeding after a few questions to outline an obviously impossible route where, according to him, 'stills were sure to be found.' Not until District Forester C. F. Winslow, of Laurel, inquired regarding payment for last springs fire fighting services, did the St. Marys citizen realize his mistake. It was then inferred that messengers and telephone calls were speeding over the county, warning that two 'prohibition men and a Federal marshal were in the county.'

"Learning their mistake, one of St. Marys' chief bootleggers appeared on the scene for consultation. Friendly, courteous, good natured, this crafty violator of intensified prohibition enforcement, voiced interest in fire prevention."

Here the official release quoted the bootlegger at length, and returned once again to the mere matter-of-fact relation of St. Marys forest fire statistics, including the following pointed statement by State Forester F. W. Besley, of Baltimore:

"The 51 per cent wooded area of St. Marys County constitutes a natural resource which is of vital importance to the whole State."

YE EDITOR DISCOVERS

Reports on public campgrounds just received from the Regions indicate a much greater problem of development than hitherto appreciated. The sheets show the existence of 4,112 recognized public campgrounds, as follows:

R-1	347
R-2	581
R-3	188
R-4	622
R-5	1,254
R-6	876
R-7	81
R-8	26
R-9	<u>137</u>
	4,112

The estimated average annual use of these campgrounds is shown by the reports as 4,418,700 people. It is, of course, true that some of these campgrounds are used by only small numbers of people and a few have not previously been used at all. Hence, the present proportions of the campground problem are somewhat smaller than the figures would indicate. Nevertheless, this problem is indubitably larger than has been realized, and all circumstances warrant the belief that it will increase progressively with the passing years.

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Lenthall Wyman of the Southern Forest Experiment Station has just been granted patent, No. 1836519, for a cutting tool to be used in scarifying trees for the production of naval stores. The tool is shaped somewhat like a draw-shave - the knife edge being about 4" across

and curved so as to make a flat crescent-shaped cut in a tree. The design of the tool is such that it permits the placing of a conservative wound upon a tree. This wound is similar to that used in France, a country noted for its conservative working. Mr. Wyman has dedicated the patent to the Government.

A number of outside agencies and organizations purchased Forest Service films during the past year. Among the purchasers were State Foresters; High Schools; Baldwin-Wallace College, Berea, O., Los Angeles City Schools; Izaak Walton League; India Stores Dept., London; University of Hawaii; Board of Education, New Jersey; North Dakota Agricultural College; Florida Game & Fish Commission; Canadian Forestry Association; Board of Missions, Constantinople; Kulttuurifilmi, Helsinki, Finland; and Department of Commerce (Bureau of Fisheries), Washington, D. C.

A total of 75 films were bought, 22 of them on 16 mm and 53 on standard width film. The Forest as a subject for motion picture films, stills, writings, etc., is a prolific and highly satisfying one.

Damages totaling \$21,529.65 because of a forest fire which started as a result of defective equipment and failure to keep right of way cleared of inflammable weeds, grass and brush, was the verdict secured against the Spokane International Railway Company by the United States at Jury trial before Judge Charles C. Cavanah in the U. S. District Court at Coeur d'Alene, Idaho, recently.

Just returned from a six months' trip around the world, Will C. Barnes called at the Washington office the other day to greet his former associates.

Walter H. Meyer of the Pacific Northwest Forest Experiment Station is in Washington for a detail of several weeks to the section of Forest Measurements. One of the problems on which Meyer is working is the development of regional volume tables for Douglas fir. It is planned to prepare tables which will cut across regional lines and be of value throughout the entire range of Douglas fir. He is also working up some data on the increased rate of growth of western yellow pine following its release by cutting.

Gerald D. Pickford of the International Forest and Range Experiment Station is in Washington for a three months' detail to the Branch of Research.

Joseph Kittredge of the Lake States Forest Experiment Station undertook his new duties as Professor of Forest Influences at the University of California on January 1.

Munns says he meant wealth not wrath (third line of his January 11 Bulletin article), but we can hardly blame anybody in times like these. It's the Depression.

BILLION-FOOT INCENDIARIES

Not many men in Oregon have logged a billion B. F. of timber, but there are a few men or families who, I am sorry to say, have burned up or ruined a billion B. F. of good merchantable timber.

Early in the administration of the Siskiyou Forest a certain man, now dead, ran afoul Forest officers because he believed in burning off the woods. He set many fires about 1912 to

1915 and, shortly after, died. He had been at it, however, for 30 years before the Forest Service came on the scene. After his death his daughter carried on where he left off and is still carrying on. The Big Panther Ridge fire now (Aug. 14) ranging in southeastern Coos County outside the National Forest looks like her work. Her father and she have ruined many million feet in this vicinity, and have changed Panther Ridge from a well-timbered country to one of near desolation

The timber destroyed by these two people is estimated as follows:

Squaw Basin Burn	360,000,000 B. F.
1/2 Eden Valley Burn, on head of S. F.	
Coquille, Cow Creek, and Mule Creek	500,000,000 B. F.
Panther Ridge and Gold Mt. Creek	<u>150,000,000 B. F.</u>
Total	1,010,000,000 B. F.

In the Eden Valley Burn the father was joined by an outside partner, so only 1/2 the loss was credited to him.

The United States is a unique country indeed when a man and his daughter can destroy such a large amount of public and private property and still remain beyond the hand of the law.

- Henry E. Haefner, in R - 6 Bulletin

PREVENT EROSION

(From an editorial, "The Preservation of Broken Lands," in the Federal Union, Milledgeville, Ga., April 23, 1850)

Two questions present themselves: - one is, could this desolation have been prevented? And the other, can it be repaired or modified? A few days since, in common with the great mass of agriculturists in Georgia, we should have answered both of these questions in the negative. A recent visit, however, to our friend Gen. Tarver in Twiggs County, and a minute examination of his plantations in the vicinity of his residence, have materially changed our opinion. His lands there are as hilly and broken as any of the table lands of Georgia; yet upon none cleared within the last few years was there a single gully or red mill to be seen, and what is more, none will ever be seen, as long as his present system is practiced. He has not only succeeded in rendering secure and permanent his fresh land, but has also taken fields abandoned by their former owners and which are trenched by gullies thirty and twenty feet wide and as many deep, and whose hillsides have been too poor to yield the poorest grasses, and he is resuscitating and restoring them to a condition in which they will again be productive, filling up the gullies, and by a process that is as simple and economical as it is successful.

All who know Gen. Tarver, know that he is one of the largest and most successful planters in the South. He indulges in no theory that will not by its practical results commend itself. The system by which he has perfected such wonders is simply in his fresh lands so to conduct the water by trenches as to prevent washing, and in his old land so to conduct it as to accomplish this end and at the same time to repair the washes occasioned by the former rush of the water. Before we had examined Gen. Tarver's plantation we had read much about, and seen something of, hillside ditches and circular plowing, but had no conception of what could be accomplished by either the one or the other. His successful experiments have enlisted the admiration of his neighbors and all who have noticed them. He has demonstrated the truth and practicability of the theory that he has practiced; and if, as it has been said, he is a public benefactor, who can cause two straws to grow where before but one

grew, Gen. Tarver is entitled to that epitaph. None can visit his Twiggs plantation without being forcibly struck with what Georgia would now be, had her lands been tilled by such agriculturists, or what she would yet be, were they under the control of men of his energy and practical skill.

EARLY LOGGING ACTIVITY ON THE HURON COMMEMORATED

By G. K. Fenget, Huron

All other activities of the early settlers revolved around the lumber industry from the time the community was settled until the timber was gone about 1890. In 1870 there were eight large saw mills in Tawas City and East Tawas, and from best information available these mills produced about 30 million feet of sawed lumber that year.

Aside from this home manufactured product, long timbers were cut and floated down the Au Sable to Oscoda where they were made into rafts and floated through the Great Lakes to mills at Tonawanda and Buffalo, New York. It has been reported that half the houses in Buffalo were made of lumber from this vicinity. Other logs floated down the river were made into lumber at Loud's mill in Osconda and Schramm's mill at Au Sable. These mills cut 250,000 feet per day.

In commemoration of these early lumbermen, there was erected this fall a monument on the banks of that famous Au Sable River. The monument commands a beautiful view to the north, out across the river and the distant timber-covered hills in the Glennie section of the forest. Three typical figures, a Lumber Jack, a River Driver, and a Land Looker, have been excellently done in bronze to the minutest detail. Saw, axe, peavie, compass, and the customary attire have been reproduced. From base to top the monument stands fully thirteen feet tall. The site has been attractively landscaped. According to present plans, so far as known, the monument will be formerly unveiled next spring. - From R - 9 Bulletin.

WHAT IT COSTS TO CARRY TIMBER STUMPAGE

In a recent report W. B. Greeley, Secretary-Manager of the West Coast Lumbermen's Association, presented several interesting examples of timber carrying costs in the Douglas fir region. These ran from 0.64¢ per M to \$7.19 per M. Here is a good average:

640 acres bought in 1906 in Oregon @ \$63.36 per acre-	\$40,549.00
Interest @ 6% on \$40,549.00 to 1930	58,390.56
Taxes 1906 to 1930	<u>51,518.02</u>
Cost plus carrying charges 1930	\$150,457.58
Footage represented	40,935,000 feet
Accumulated tax charge per M	\$1.26 per M
Cost plus carrying charge per M	3.68 per M

From R-3 Bulletin

COPIES OF BULLETIN 1430 WANTED

The Branch of Research is anxious to obtain some additional copies of W. W. Ashe's bulletin No. 1430 entitled "Financial Limitation in the Employment of Forest Cover in Protecting Reservoirs." and which is now out of print. If extra copies of this publication are available, Research would be very glad to have them.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES, WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER.

Robert R. Ransome

Vol. XVI No. 4,

Washington, D. C.

January 25, 1932

THE NEW RADIO PROGRAM

By George A. Duthie, Washington

January 7 marked the beginning of a new type of educational work by a Federal bureau. By a "continued in our next program" series of dramatic sketches the Forest Service is attempting to tell the radio audience in an entertaining way how the National Forests are handled. This program will replace the lectures on the various phases of our work which have been broadcast by members of the Service from time to time in the National Farm and Home Hour program.

It has seemed to us for some time that this program at times was rather drab, notwithstanding the large amount of high-class talent that was induced to scratch its thin gray hair over manuscripts and then tremblingly perform before the microphone. Some lecturers are able to put on talks that hold their audiences, but unfortunately we are not all good orators. The most popular radio programs at the present time are the serial programs of dramatic episodes. Almost everyone who listens to the radio broadcasts likes this form of entertainment, while the audiences of lectures are decidedly limited. Therefore, it seemed that if we could find a way of presenting the Forest Service story in dramatic form we would command a much larger audience, and also relieve various members of the Service of a rather onerous burden of preparing and delivering lectures.

Our first attempts at dramatics were disappointing to say the least. It seems that dramatic writers are just about as scarce as good orators, and unless the sketches are good - well, they just can not get out in the sunlight at all. Finally, Charlie Randall decided to try his hand at it, and his work took immediately. His plan is to make the Ranger the central figure around whom all the stories are woven. He is a "top" Ranger who has been through all the experiences of Forest administration, and has helped out on some research field work. He has an assistant assigned to him for training who is full of the eagerness of youth, enthusiasm and ideas, some good, some not so good, like we all were once. The theory is that the public would be very much interested if it could look in on the training of this young Ranger while he acquires all of the woods lore and background of experience of the older man and, also, has some adventures of his own, romantic and otherwise.

It was not hard to see the merit in Randall's stories, and when he had prepared two or three for samples we were ready to broach the scheme to the chief of the Radio Service of the Department. Mr. Salisbury approved of the plan with an eagerness that was unexpected. He

presented it to the National Broadcasting Company, and here again we found prompt approval and received promise of the services of artists and musicians to broadcast the sketches.

The first episode was broadcast on January 7 with a very gratifying reception. The cast selected for the parts were:

Jim Robbins, the old Ranger.....	Harvey Hays
Jerry Quick, the cub Ranger.....	Arthur Jacobson
Bert Ellsworth, the Supervisor.....	Clifford Soubier
Bess Robbins, Jim's wife.....	Judith Lowry

These are all experienced actors and among the best on the National Broadcasting Company's staff. Other actors will be cast for additional parts as needed in subsequent sketches.

In the presentation of this program the National Broadcasting Company is sparing no expense to have it put on in a finished and attractive manner. The sketches are rehearsed by the actors repeatedly under a very critical director before they are put on the air. A large well rehearsed orchestra plays the accompanying music and a quartette of male voices sings the theme song, which is the Ranger's Song from Rio Rita. In addition, the Company furnishes the services of a continuity writer to work over the stories and inject little touches of realism and incidental conversation into the parts in order to make them sound natural. It is also sending out special publicity notices about "Uncle Sam's Forest Rangers," which is the title of the program, in order to create a "fan" audience for it. In terms of its regular commercial rates the National Broadcasting Company is furnishing the Forest Service radio service worth \$300,000 a year. It is doing this in order to add sparkle to the Farm and Home Hour program and to increase the size of its audience.

The sketches will be broadcast from the Chicago studio each Thursday at 12 m., Central Standard Time, over the eastern network of 45 stations covering the entire country as far West as KOA Denver, and beginning about February 1 the same series will be put on during the Western Farm and Home Hour (12:15 to 1 p.m., Pacific Time) from San Francisco over the Pacific network of 10 stations. This, according to the National Broadcasting Company's officials, affords the largest distribution ever given any serial program.

In order that the program may reach the people to whom it should be particularly interesting the help of field officers is desired in calling it to the attention of National Forest residents and users. This may be done in various ways: by news items in the local papers, by personal mention of the program, etc. Region 7 is preparing to furnish mimeographed notices, on post card form 642, to its Supervisors who will mail them out. This will help greatly to enlarge the audience of our sketches which we hope and expect will be both entertained and instructed by the story of the work of the Forest Service.

THE DECKER SADDLE

By C. P. Fickes, R. 1

This type of packsaddle originated in Central Idaho in the country around Buffalo Hump during the mining boom that occurred in that country from 1898 to 1900. Old man McDaniels, an old-time aparejo packer from Oregon and California, was the originator of the idea for the tree and half-breed (as it is called) aparejo cover which greatly resembles the aparejo. Several brothers named Decker saw the practicality of the idea and adopted it, making some improvements. They applied for a patent on the tree and rigging but I believe the patent was never allowed. Anyway this is where the saddle got its name. Old man McDaniels was quite an eccentric character, about one of the best packers that ever coiled a sling rope. The way he moved tonnage on his half-breed rigging was an eye opener to the natives in the

Salmon River country and old "Mac" soon became a well-known character among packers and miners. He could do more with a green mule in less time than any one else around the country.

Forest officers soon saw the utility of this rigging and took it over bodily. The latest refinements in the tree and rigging are largely due to improvements made by Forest officers and packers working with them. The tree as now made is the product of O. P. Robinett, a blacksmith long employed on the Selway Forest. The present Decker saddle is considered by all old-timers who have used it as being far superior to either the cross-tree or sawbuck or the old Army aparejo in usability, especially for one-man packing in the mountains. These saddles have stood the gaff of packing every conceivable thing that could be used in either a mining camp or a logging camp, and that with the least amount of damage to the mule.

Loads for the Decker saddle are cargoed in canvas mantas the same as they are prepared for the aparejo. They are fastened to the saddle with the regular swing or sling rope. The diamond hitch is not used nor is it needed: in fact, there are many first-class packers now working for the Forest Service who could not throw a diamond hitch on a bet. The advantage of this is that the load on each side of the animal has some "give" to it if the mule accidentally encounters a tree or rock. If the load is displaced in this way it immediately shifts back into place as soon as the obstruction is passed. With the use of the diamond hitch on the aparejo or cross-tree the load was solid on the animal and the mule went with the load.

The boards of the Decker tree are cut and fitted from green cottonwood, the side boards being fastened together with a 3/4-inch iron loop or fork as it is called. The half-breed pad consists of two pieces of heavy canvas sewed together around the edges and stuffed with hay, excelsior, or curled hair. The most satisfactory material for this stuffing is bear grass which, when cut green, has been tied in a square knot and allowed to dry that way. After it is thoroughly dry the knot is untied and the dry grass then has a springy quality which cannot be equaled for the purpose. The pad is fitted to the tree by having two slits cut in it which fit over the iron forks allowing half of the pad to hang down on each side. Constant use tends to wear holes in the canvas half-breed, which is comparatively expensive to replace. The half-breed is protected with a piece of heavy canvas called a mantell fitted over it. The mantell can be replaced at small cost as it becomes worn, thus prolonging the life of the half-breed pad.

The usual Forest Service practice is to use a heavy oblong saddle pad and single wool blanket next to the mule under the tree, the pad being put next to the hair. Some experience has indicated that the corona pad and blanket as used with the aparejo are also satisfactory.

TIMBER SALE STAND BETTERMENT

By Howard Hopkins, Washington

One and one-half years ago the Knutson-Vandenberg Bill became a law. Section 3 of this law allows the use of what would otherwise be timber sale receipts, under certain limitations, for planting and/or stand improvement work on National Forest timber sale areas. Every Forest officer is, or undoubtedly should be, personally familiar with this law, sometimes called the Act of June 9, 1930, and each should know just what he can and can not do, under the provisions of this law, for the improvement of his district or forest.

The Knutson-Vandenberg law is probably the most important legislative action, from a forest management standpoint, taken in several years. Even the most remote Ranger, who handles at least some timber sale work, will usually be able to make good use of this law in the building up of the timber resources and increased timber production of his district.

After one and one-half years to accomplish, and plan work we wish to accomplish, under this act, what do we find actually started or definitely planned? In actual accomplishment to date we find only very isolated attempts to put this law into use for the improving of the silvicultural condition on the cut-over sale areas. Still more striking is the fact, that in actual planning of work to be done, when sale areas and funds become available, still more isolated and few are the cases where even worth-while thinking has been undertaken. To the vast majority of rangers and supervisors the Knutson-Vandenberg Act is just another piece of red tape machinery, to be talked about at meetings, and to be forgotten in the field.

Having reached this far, the reader, (if he be one of those who really know what the Knutson-Vandenberg Act is) may indignantly cry: "Why I have wanted to use that ever since the law was passed but the depression cut off my sales with the result that I can not carry out my plans," and so on until one's self-satisfaction is fully restored and the law can be once more peacefully forgotten. As far as present actual accomplishment under this law goes, this retort may be largely true, but how far has each one gone in planning what work can be done to best advantage when conditions permit such work to be undertaken? Has a complete inventory of the administrative silvicultural problems of each district or forest been made? Have all the practical methods of solving these problems been worked out in accordance with the action possible under the provisions of the Knutson-Vandenberg Act, and have these possible solutions been studied over, and set down in black and white?

The stand betterment deposits collected under the Knutson-Vandenberg law are solely for administrative use on the timber sale areas from which they each originate. Due to the lack of sufficient knowledge concerning many of the silvicultural problems of administrative nature, much work will necessarily be done during the next few years of a semi-experimental nature, with deposits under this law, to determine just what method is best and most economical for the handling of each particular set of conditions or problems. This is a necessary forerunner of later large scale investments and work. One could write all night and still not cover all of the questions of silvicultural management of our species to which administrative timber sale men need immediate answer in order to increase the productivity and net returns from their cut-over sale areas.

Sometimes it is charged that timber sale men throughout the Forest Service are first of all wood cutters and interested only secondarily in patching up the cut-over areas to leave them a little better instead of in the worst possible silvicultural condition. When one sees the lack of interest or thought given to the possible use of the Knutson-Vandenberg law one is forced to wonder if there is not much truth in such a charge.

Let me ask two questions. First, how many Forest officers, who have to do some time or other with timber sales, are still not familiar with the Knutson-Vandenberg law of June 9 1930? Second, how many Forest officers, who are familiar with this law, are perpetually postponing all planning of future action under the sad argument "How much I will accomplish along this line when timber sales pick up so that I can really do something."

Now is the time to find out what you need to know, to plan what you wish to do, to list in order of priority what you plan to do. To work out how the desired detailed information will be secured in each instance. When timber sales do pick up the plan is then ready for action and we have the additional benefit of revising and improving said plans based on additional thoughts and observations during the interim.

MUSSOLINI TO HIS FORESTERS:

"I love trees, protect them. I will help you to protect them."

EXTRACTS FROM R-1 FF DEFICIENCY LETTER
(Cont'd. from January 18 issue)

Emergency Guard Expenditures:

The \$103,481 expenditure in 1931 includes amounts expended for additional guard services during the peak of the fire season, for special officers to enforce fire-preventive restrictions, and for carrying the regular guard force in whole or in part on some of the Forests during the post season period (the period between exhaustion of regular fire-control allotments and the physical close of the fire season). A brief comparison of use and results as against 1930 is:

Year	Expenditure	Use of E.Gds. Man-days			Result			Total Fires	
		Fire Prev.	Fire Control		First	First	Entire	Peak Period	
		Enf. Re- strictions	Post Season	Peak	Disc.	Action	Action	7-10	8-31
1930	105,587	1772	1439	22045	122	227	130	1040	
1931	103,481	2988	1632	21342	151	233	173	1085	

More emergency guards were used to carry into effect fire-preventive plans in 1931 than in 1930. Due to the explosive characteristics of the woods this season this increased intensity of forest use regulation was felt to be essential to reasonable safety.

Poor visibility conditions during July and August resulting from smoke-laden air, forced the manning of many secondary detection points. The hit-and-run tendencies of the season's fires made it imperative that intermediate smokechaser points be filled to assure the minimum lapse of time in getting onto reported fires. The outcome is speculative, of course, as to what would have been the result had guards not been at hand to spot, promptly, the 151 fires credited to emergency-guard discovery, or to suppress the 233 fires credited to their action. Considering the general behavior of the season's fires, it can reasonably be assumed that tardy detection or action upon only a small per cent of these might have resulted in a far greater expenditure for suppression than the total cost of the emergency forces. What, for example, might have been the outcome of the 77 lightning fires which started upon the Lolo on August 17 had it not been for emergency guards? Possibly another Kaniksu episode. You will be interested in a few typical examples of emergency guard use:

Selway

"On July 31 an emergency man stationed at Running Creek Cabin was sent on a horse toward Archer Mountain to search for strikes. He found two fires which never were seen by any regular lookouts and put them out. They were both in a flash type country and might have reached considerable size before being discovered otherwise."

Lolo

"On August 17, 1931, a severe lightning storm passed over the Monture, Bonita, Lolo and Powell districts. Forty-five emergency guards were immediately rushed to district headquarters and held there pending the discovery of fires by the lookouts. Within the next twenty-four hours seventy-seven lightning fires had been located. The regular protection force was inadequate when confronted with such a large number of fires. However, with the aid of the emergency men, who were immediately dispatched, all but ten of the fires were held under class C size. High inflammability existed and had we delayed moving these men until the fires had been located it is only reasonable to expect that many more fires would have reached crew size resulting in a greatly increased cost."

Kootenai

"Out of about 80 fires emergency patrolmen took initial action on 13, each time at a saving of 30 minutes to 1 hour over time necessary for regular men to reach them."

"Five fires in areas blind from regular protection men were picked up while small and subdued by emergency men. Two of these were incendiary fires.

"Three fires occurring at night where it would have been difficult if not impossible to gather up firefighters were promptly handled by emergency men. There were, therefore, about 25 per cent of the 80 fires handled by emergency men when and under conditions where no other men were readily available at the time."

The principles underlying use of emergency funds were made the subject of pointed discussion with Supervisors prior to the opening of the fire season and more specific factors defined for their use in correlating fire dangers and emergency expenditures. As you well realize, such correlation is not easy since it must be correlation brought about by 21 men working independently. The Regional office dare not inject itself too deeply into individual cases else the Supervisor will soon fail to turn his best thought to the problem.

It is believed that marked progress was made this season in the development of better field thought and more balanced action in use of funds. In no other way can explanation be had of the fact that the emergency expenditure was held below the 1930 level in the face of tremendously disturbing fire weather with fires jumping in the space of hours from zero to thousands of acres.

It is not, by any means, intended to convey the thought to you that Region 1 is satisfied with the present quality of use of emergency funds nor that it is satisfied that all of this year's expenditure was justified. Means can and will be found to get into practice still better methods of using men and more positive means of correlating dangers with danger minimizing expenditures. The studies of fire weather and inflammability factors, detection needs, fire control improvement needs and transportation needs, together with the analyses of use of man-power now under way in the Region will go a long way toward bringing about better balanced thought upon such subjects. The increasingly better physical development of the Forests will make for more efficient use of man-power. The sum total of these advances will be represented by: more efficient use of fire control funds of which emergency guard expenditure is, after all, an integral part. As the productivity of appropriation dollars rises the need for deficiency dollars should and will fall. But the productivity of appropriation dollars cannot rise unless the plant equipment is made more efficient. The quality of plant equipment is increasing. There now remain no more than 10 of the 74 two-man protection stations reported to you last year. The balance have been divided and the man-power salvaged thereby, reassigned to points that further strengthen the outstanding need of Region 1 -- detection. This is the direct result of better plant equipment. One hundred forty-six additional lookout structures were erected this year and communication improved through the building of 1400 miles of telephone line. Also, it was found possible to finance 45 additional protection positions within the limits of present allotments to the Region, largely as the direct result of savings brought about through improved transportation possibilities, better housing of men, and better storage facilities for food and equipment.

There is no cause for disheartenment in the fact that emergency guards cost \$103,481 this season. Without doubt there were some unjustifiable expenditures but, with such hit-and-run fire conditions as existed this year, it seems a safe wager that had 10 per cent of the fires that were handled by emergency guards escaped to Class C size, the total cost of their control would have approximated the entire cost of the emergency-guard force.

YE EDITOR DISCOVERS

Airplanes are being successfully used in transporting sick and injured men from remote points to medical assistance, according to reports received from the Regions. Several injured

men were thus transported in Region 1 this summer. These men, the Region reports, were made reasonably comfortable and were able to reach medical aid in a few hours, when by previous methods days of painful horse travel would have been required. Other instances are cited by Region 4 as follows: One man while eating lunch was injured by a falling tree. He was carried about 14 miles to the Chamberlain Ranger Station, where he was placed in an airplane, arrangements for which had previously been made, and sent to McCall, Idaho. He was landed at McCall an hour later, or at about 7 o'clock the same day he was injured. Early last spring, when the roads were not opened through the snow, another man engaged in trail work on Big Creek in the back country of Idaho was injured by a rock slide. An airplane was summoned and the injured man was transported promptly to Boise. In another case, a man with a bad attack of appendicitis was taken from the Chamberlain Ranger Station to Lewiston by plane.

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Development of radio for use in fire control work has advanced to the point of preparation of bid forms inviting proposals from manufacturers to construct 15 semi-portable combined radio transmitter-receivers for use during the season of 1932. This set will transmit both code and voice and the weight, including batteries and everything, will be about half that of the 79 pound set used experimentally on the Columbia National Forest in 1930.

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The recent reports on National Forest campgrounds are the most complete and comprehensive study of this activity thus far made by the Forest Service and constitute a basis for constructive future planning and for the presentation of financial needs to Congress. They show to what extent these campgrounds are used by the public, to what extent they have been equipped with sanitation and fire preventive facilities and what further equipment with such facilities is desirable. The most surprising development of the study was the discovery of the existence of more than twice as many designated campgrounds as had previously been assumed. Or in other words, a total of 4,112 as against an assumed number of approximately 2,000. However, many of the campgrounds reported now have so limited a use as to warrant questions as to the necessity of substantial expenditures for their development. While other campgrounds listed are not at present used at all but are recorded because of their future potentialities. Knowledge of the existence of these areas will be of outstanding value for inclusion, but any calculations of immediate future needs for development might distort the results. For these reasons a classification and grouping of campgrounds on the basis of intensity of present or prospective use and differences in standards of development are quite essential.

In the heat of the winter campaign, the regular personnel of the Forester's office lacks the time to make these studies. Consequently, a proposal has been made for the temporary employment of Kenneth J. Maughan to segregate these data. Mr. Maughan hitherto has been employed in Region 4 during the summer seasons in connection with the recreational work. He is now doing graduate work under Professor Francis at the New York State College of Forestry at Syracuse. He recently has formulated and sent to all Supervisors a questionnaire designed to develop the extent and requirements of recreational use as a feature of forest management. Consequently his brief employment in a review of the recent report on sanitation and fire preventive requirements may be mutually advantageous.

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L. F. Kellogg of the Central States Forest Experiment Station is in Washington for

a few weeks' detail to work up, in consultation with the members of the Division of Silvics, data obtained in a study of forest plantations in the Corn Belt. The study on which Mr. Kellogg has been working is to determine the growth and yield of the various plantations that have been established since the country was first largely cleared for agricultural purposes. First attention is being directed to black walnut on account of the widespread use of this tree in forest plantations and the great value that is attached to this wood. Considerable difficulty is being experienced in expressing growth on an acre basis because of the openness of the stands and the small size of the areas from which the data have been obtained. However, when individual trees are worth up to \$150 or more a thousand it behooves the farmer to know rather definitely what he can expect in the way of per foot yields from his idle acres.

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R. F. Grefe of Region 6 is in Washington for a short detail to the Branch of Operation. The project on which he will work is the development of standards in protection planning.

DOES ANYONE WANT TO WRITE THIS BOY

United States Forest Service,
930 F Street, N. W.,
Washington, D. C.

Dear Sirs:

Could you tell me if there is any way a boy of 16, interested in Forestry and Forest Rangers, could get in correspondence with a Ranger in the National Forests.

I would appreciate any information you could give me about this.

Yours truly,

/s/ JAMES TAYLOR

Box 136

Amesbury, Mass.

NEW SWEDISH WALLBOARD

A new wallboard, known as Treetex, is being manufactured in Sweden. The product is made by grinding up chips or sawmill waste into fibers. A gluing and impregnating solution is added to the moist fibers, which are then moulded and dried in specially designed machinery and made into half-inch boards in standard sizes varying between 3 x 8 feet and 4 x 12 feet. The boards may be glazed, tongued, and grooved in special machines. Treetex is very porous, as the sawdust and wood flour is removed from the raw material in the manufacturing. In spite of being one-half inch thick the weight of Treetex boards is only 6 3/5 pounds per 1550 square inches. It is important to note that Treetex is impregnated to resist water.

- R. 3 Bulletin

HEARD AT THE TIMBER LAND OWNERS MEETING IN MICHIGAN

In reporting upon the findings of the Governor's Committee studying taxation and duplication in local government who have spent the last three or four years in work of this kind, Mr. Peterman stated, "We have not found that compensation of public employees is a material factor in the cost of government but rather that lack of competence is of real public concern." - E. W. Tinker



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY **** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Wesley R. Weaver

Vol. XVI No. 5

Washington, D. C.

February 1, 1932.

THE NORTHERN ROCKY MOUNTAIN FIRE DANGER METER

By H. T. Gisborne, Northern Rocky Mountain For. Sta.

The problem of maintaining a fire control organization adequate to cope with prevailing and probable forest fires has many phases. One phase is the rating of existing and probable fire danger which determines whether a skeleton organization is sufficient or whether the danger is so great that every conceivable step is justifiable if fires are to be suppressed before they become conflagrations.

Experience has developed several rather distinct steps in the enlargement of the year-long skeleton force to meet increasing fire danger. These include the hiring of the regular summer protective force, a first emergency call to man additional lookout and smokechaser stations, a second emergency call to man all planned stations, and a third call has been suggested which would mobilize additional overhead and organized suppression crews at strategic locations throughout a Forest in order to reduce to a minimum the time required for getting large crews to work on a fire. Such enlargements of the fire control force are extremely expensive and it is one function of the Regional office to coordinate these expansions between Forests, so that justifiable protection is given to all units, yet expenditures held within reasonable limits.

In the determination of the size of protective force needed by any National Forest, each supervisor naturally must have the responsibility for action. It has been demonstrated many times, however, that neighboring Supervisors frequently fail to recommend similar enlargements of their respective organizations, even though their timber and fuel types are similar, and the weather uniform over both Forests. It is believed that many of these variations in practice are due to the fact that in rating the degree of prevailing fire danger, one Supervisor has given special attention and more weight to certain factors, while his neighbor has either overlooked these factors or given them much less weight. Obviously, there are certain fundamental factors which comprise forest fire danger, and these should all be considered and weighted the same by all Supervisors.

In an attempt to assist the Supervisors in considering the most important factors, a device called a Forest Fire Danger Meter has been evolved. This meter contains definitions of seven classes of fire danger and the administrative significance - or character of fire control organization - believed to be commensurate with each class of danger. This meter, which is patterned in part after a type used in photography is designed to show readily and quickly the class of fire danger over a wide variety of conditions.

Six factors have been selected as most important in determining the prevailing and probable class of fire danger. These are: (1) season of the year; (2) activity of the fire starting agencies; (3) dryness or inflammability of the forest fuels; (4) additional allowance for exceptionally low relative humidity; (5) wind velocity; (6) visibility or ease of detection of small fires. These factors have been selected and integrated on the basis of the fire research conducted by the Northern Rocky Mountain Experiment Station, together with the opinion and judgement of some of the most experienced men in the Regional office. The Experiment Station also has commenced a very detailed analysis of its weather, fuel, and fire behavior data in order to check still further the integration of factors and the classification of fire danger.

The present Fire Danger Meter is being issued now merely as a device for trial and study during the 1932 fire season.

DOES "THEM AS HAS, GETS" APPLY TO GRAZING PRIVILEGES?

By R. R. Hill, Washington

Senator King of Utah recently, called the attention of this office to complaints received by him charging the Forest Service with discriminating against the small owner of live-stock in favor of the large stockmen in the distribution of grazing privileges on the National Forests. In order to determine the merits of these complaints, an analysis was made of the records of grazing permits by size-classes, which have been a part of the statistical data submitted by each Forest for many years. It is evident that if a material change has taken place in the distribution of grazing privileges between large owners and small owners that change should be reflected in a corresponding change in the proportion of large and small permittees compared with the total number of permittees and in the percentages of the total number of stock grazed by the large as compared with the small permittees. In the following table the percentages of owners grouped into four size-classes and the percentages of stock grazed by each class for the Service as a whole is summarized for the beginning and end of the period 1909-1929. (1929 is the last year for which these data are available).

CATTLE AND HORSES

<u>Class of Permit</u>	<u>Percentage of Permittees</u>		<u>Percentage of Stock</u>	
	<u>1909</u>	<u>1929</u>	<u>1909</u>	<u>1929</u>
1 to 40 head	64	64	15	15
41 to 100 head	21	19	19	18
101 to 200 head	8.5	9.6	18	20
More than 200 head	6.5	7.4	48	47

SHEEP AND GOATS

<u>Class of Permit</u>	<u>Percentage of Permittees</u>		<u>Percentage of Stock</u>	
	<u>1909</u>	<u>1929</u>	<u>1909</u>	<u>1929</u>
1 to 1,000 head	43	64	13	22
1,001 to 2,000 head	38	27	39	40
2,001 to 4,000 head	8	5	17	15
More than 4,000 head	6	4	31	23

It will be observed that the status of the different classes of Cattle and Horse permittees with respect to proportionate numbers in each size-class and percentage of stock grazed was almost the same in 1929 as in 1909. The smallest size-class remained in just the same position; there was a slight loss in the position of the group grazing 41 to 100 head and a corresponding gain in the position of the two larger groups. On the whole, none of the changes are sufficiently important to indicate that the small permittee has been discriminated against.

In the case of sheep the figures disclose a marked contrast in the relative status of the different groups at the beginning and end of the period under discussion. Based upon this record the percentage of permittees in the smallest size-group increased 16 per cent, whereas the percentage of permittees in the three larger groups declined by that amount. The percentage of stock grazed by the permittees running not more than 2,000 sheep increased 8 per cent while the percentage grazed by the larger permittees decreased to a corresponding extent.

A careful analysis of a more detailed record of distribution of grazing privileges on the National Forests in Utah for the years 1911-1929 showed a trend corresponding to that described for the Service as a whole. A similar study of the records for different States would doubtlessly show minor variations from the general trend, but it is believed that in no important instances would justification be found for the criticism that the graxing policies of the Forest Service have favored the large and influential stockman at the expense of the small owner.

EXTRACTS FROM R-1 FF DEFICIENCY LETTER
(Continued from January 25 issue)

Fire-Suppression Policy:

The policy this year as heretofore was to "hit quickly and hard," taking into account topography, fuel type, weather conditions and available resources of labor, equipment, transportation and overhead. The best index of the degree to which this was done is the fact that (according to preliminary Forest reports) only four per cent of the total of 1587 fires were "extra period." It is believed that this policy again paid dividends in the form of reduced total costs, even though it is possible to pick out individual instances where fires were overmanned.

Likely the most difficult problem to solve in bringing about highest efficiency in a program of "hard hitting" is that of quickly providing competent overhead for large forces of men and for night crews. Some means must be found whereby greater numbers of highly competent foremen can be tied almost permanently to our organization. Means must also be found to develop within the organization a much larger and more competent supply of subforemen and strawbosses. Plans are now being developed having for their objective the acquisition and development of such over-head resources. One of the means toward this end will be to so organize each road crew that it will in itself provide the overhead for at least 100 laborers. Another will be to see to it that on each of the Forests a number of small trail crews are composed entirely of competent, trained foremen and strawbosses.

The airplane was for the first time (in this Region) used for transportation of fire crews and smokechasers. The results were most gratifying. A typical use was the shipment ou August 18, following an electrical storm, of 24 smokechasers to the moose Creek field in the remote East Selway. A few days later a 50-man fire crew was shipped to the same field. Both outfits gave a most excellent account of themselves due, principally, to the fact that they got a 48-hour jump on their fires as a result of a 45-minute plane ride.

Flow outfits proved their worth and were used on many fires this season. To accomplish this required the use of a traveling demonstrator and further punch of this same nature will be required before the idea is wholly sold. The inertia of habit and tradition is a tremendous load which has, figuratively, to be "dynamited" in order to move it.

The rate of construction of held line again stepped forward. On the Freeman Lake fire (Kaniksu), for example, 93 miles of line were constructed in 102 hours. On the Hemlock Creek fire (Clearwater) 81 miles of line were constructed in 102 hours. Better foremanship on the fire lines will, it is believed, give for the future a surprising return in terms of speedier line construction and line more surely "held."

In the matter of preparedness real progress was made. For example; early in the season Forests were encouraged to increase their supply of 1-man fire units by using the simple expedient of putting up light-weight makeshift outfits containing cutting and digging tools and a ration. Of such outfits 925 were prepared which increased greatly the flexibility of forces. The usual 25-man tool outfits were revamped with the result that about 30 per cent less pack stock as required to move them. A back-pack fire bed was devised of such lightness (11 pounds) that men could be asked, with a clear conscience, to carry them, thereby further reducing the demands upon pack stock. Several large crews were sent to fires this season packing beds, grub and tools upon their backs, and that without complaint. Progress was also made in developing the technique of animal transportation by truck. And, last but not least, guard training was improved by eliminating the frills and side issues from the courses and by improving the skill of those handling training work.

General:

All in all, the outcome of the 1931 season shows that definite progress is being made in fire control. The Experiment Station records show that the season was undoubtedly the most dangerous faced by Region 1 since 1919. The number of fires during the peak period has been exceeded but twice during the preceding ten years. The total expense per acre of fire control is the least yet recorded for a critical year.

Peak Period Fires (7-10 to 8-31)

Year	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
Number	1065	783	440	636	1228	771	961	827	1535	975	1085

The Outcome in terms of comparable years

Factors considered	1919	1926	1929	1931
Acres burned	1,514,554	402,974	309,893	141,637
Ave size "C" Fires	2,484	1,939	1,296	913
Ave size all fires	670	308	159	39
% of Gross areas burned	5.83	1.49	1.15	.529
Damage (dollars)	4,047,964	3,366,042	1,613,399	852,065
Cost of suppression	°2,157,515	979,027	1,534,028	1,922,037
Cost of presuppression and prevention	127,258	° 375,882	° 518,604	° 513,921
Totals: Damage plus Sup. plus Prevention and Presuppression	6,332,737	4,720,951	3,666,031	3,288,023
Average expense per acre (cents) P+S+D (26,780,000 A gross)	.23+	.18+	.13+	.12+

Includes E. P. expenditures

IN THE BROADCASTING STUDIO WHEN "UNCLE SAM'S FOREST RANGERS" GO ON THE AIR



"Jerry Quick"

"Ranger
Jim Robbins"

"Supervisor
Ellsworth"

"Ranger Jim's
Wife"

Director
Lindley

SUCCESSFUL APPEAL ON A REJECTED APPLICATION FOR DISABILITY RETIREMENT

By O. A. Zimmerli, Washington

Early in January the Forester's office was informed of allowance of the retirement application of George A. Bonebrake, formerly employed as Assistant Supervisor on the Umpqua National Forest. The original application was rejected in 1928 on the ground that disability for useful and efficient service as a Forest officer had not been shown.

While in charge of a fire in 1921, Mr. Bonebrake was struck by the limb of a tree, part of which penetrated the eyeball, causing complete loss of vision in one eye and resulting later in some impairment of vision in the other eye and the state of his health generally. Since leaving the Service Mr. Bonebrake has received compensation from the Employees' Compensation Commission at a very low rate based on 30 per cent disability. Because of the meager allowance under the Compensation Act, application for annuity under the Retirement Act was made in the spring of 1928, which, as previously mentioned, was rejected. Mr. Bonebrake decided at that time not to appeal from the decision.

Later, consideration was given to reopening his compensation case in the hope of having the compensation increased, because the amount allowed seemed to be unreasonably low, considering the actual extent of the disability. Before the request for reconsideration was completed the Retirement Act was amended by Act of May 29, 1930. A clause in the amended Act permitted the filing of applications prior to September 30, 1930, by employees who had failed to file within the prescribed period of six months after separation. The Forest Service took advantage of this provision as a possible means of appealing the Bonebrake application, which had not been appealed within the time ordinarily allowed. While many months elapsed before final action, because of the volume of work imposed upon the Pension Unit by the amended Act and the necessity for medical examination in Bonebrake's case, the application has now been allowed, effective January 1, 1928, at \$702.84 per annum to June 30, 1930, after which the annuity is at the rate of \$843.36, based on a period of service of approximately 21 years.

The final outcome is gratifying to members of the Service who have worked on the case or who were familiar with the facts, especially since the disability that prevented Mr. Bonebrake from continuing his work was wholly the result of an injury suffered in the performance of official duties.

YE EDITOR DISCOVERS

In the Agriculture bill as reported by the Committee to the House, reductions in appropriations are made in addition to those embodied in the budget as submitted by the President. For the Forest Service these further reductions include the following:

Washington Office	\$ 1,600
Protection and administration of National Forests (Salaries and expenses)	76,500
Planting	5,800
Reconnaissance	1,100
Acquisition	45,940
Sanitation and fire prevention	17,335
Lands	500
Improvements	52,400
Research appropriations	12,000
Forest highways in Alaska	595,000

The bill also specifies that "savings" in salary liabilities when positions are left

vacant, or when a vacancy is filled at a rate lower than that received by the preceding employee, shall be "impounded" and returned to the Treasury. This means an additional material cut to the Forest Service, because through necessity and long experience most of our financial managers have learned to anticipate these savings and use them, either in the original allotment plans at the beginning of a fiscal year or during the fiscal year, to finance necessary but unforeseeable liabilities.

An additional provision prohibits the filling of any vacancy unless the position is so vital as to justify consideration and written approval by the President of the United States. The bill also provides, of course, that no money shall be used for any increase in compensation within grade or higher allocation of any position. All these provisions with respect to filling of vacancies and impounded "savings" are effective immediately upon approval of the act. A report of all savings as a result of the provisions mentioned must be made for the period from the date of approval of the act to October 31, 1932.

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Writing to a member of the Forest Service, A. D. Lindsay, an Australian forester who visited the United States about two years ago, said:

"Personally, I am convinced after my tour in America that an economic stocktaking of the softwood plantation situation in Australia and New Zealand is at the moment more important than silvicultural studies. In certain areas, I believe we can produce certain low grades of softwoods at a cost that can compare favorably with any other part of the world. Yet, this can only be said about certain areas of plantations. The economic possibilities of any of our plantations has been based on a probable rise in stumpage and lumber values. An examination of various areas in U. S. A. makes me very dubious if this will be true to any extent in the United States. It seems that the competition of alternative materials will keep down the price of lumber. However, I think we have failed to realize that in Australia the same factors are likely to come into operation, although perhaps to a lesser extent so that the price of lumber will not be determined by any law of supply and demand confined purely to timber. I feel, therefore, that we shall have to review all our plantation activities in the light of this probable development. In certain instances expenditure on plantations has been justified on the basis of stumpages as high as \$20 and \$25 per M. I can see little excuse for these. On the other hand, a considerable area of our plantations are grown at a cost of \$5 - \$10 per M, and if our milling costs were brought down to more reasonable figures expenditure on these would be entirely economic."

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Reports on the new 25-40 pound radio set developed in Region 6 during the last six months are very encouraging as to the utility of this set for transmission of voice. One statement is that the author has carried on a voice (not code) conversation lasting over an hour, using one of these sets. He states, "It's just like using the telephone."

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Word comes from the Forest Survey crews in the South that they have had to terminate their test run in the pine territory with 15 miles uncompleted because of high water conditions. However, this will not invalidate the test in any way, and the data gathered will be sent in promptly and analyzed as a basis for final determination of proper line and plot interval in the pine region.

It had been planned to resume work in the bottomland hardwoods on a "quantity production" basis upon completion of the pine test run, but overflow conditions in the bottomlands are so general that work can probably not be undertaken there for sometime. This will necessitate resuming work in the higher pine lands at the earliest possible moment.

Arrangements have been made with the Bureau of Chemistry and soils whereby they will supply a man to determine the best method of getting a rough soil classification which will be not only sufficient for the survey purposes but will also contribute something to the general soil classification work of that Bureau.

HELPING NATURE TO SEED THE FOREST

In this age when reduction in the cost of production is diligently searched for in every direction, foresters must also seek to develop cheaper methods of timber growing. The universally accepted procedure of replacing an old forest with a new one is by planting.

During last summer, the Experiment Station attempted to assist nature in reestablishing a forest by the use of an ordinary farm disk harrow. One area selected for this experiment proved very successful. An account of it may, therefore, be interesting.

A 3-acre plot was selected on the Chippewa National Forest in an old Norway pine stand. The ground was practically devoid of any young trees. This plot was disked in the autumn of 1930 at the time the seeds were falling. A year later, in the fall of 1931, an examination was made of the disked and the adjoining undisked, areas. On the disked area over 15,000 1-year old seedlings per acre were present, while on the adjoining undisked area only 2,000 seedlings.

To prove that the abundant reproduction is due to disking, the seed was sown at staked spots on the disked and undisked soil. One year later, on the disked soil, there was one seedling for every 35 seeds sown and on the undisturbed soil one seedling for every 50 seeds sown. Apparently about 97 per cent of the seed failed to germinate from one or another cause. On the disked soil there was one dead seedling in every five, while on the undisked soil there was one dead seedling in every two. Disking improved the chances of survival.

The disk, by cutting up the sod and shrubs in the ground, lessened the competition of the under-growth and helped the seedlings to survive the dry summer. The seedlings on the disked soil were found most numerous in the bottom of the narrow furrows made by the disk. Evidently the furrows provided not only better conditions for germination and survival but also protected the seed from birds and rodents. The cost of this method of seeding the ground is estimated at about 75¢ per acre. As contrasted with \$6 to \$10 for planting, the method has a distinct practical advantage wherever it can be used effectively. — Technical Note,
Lake States For. Exp. Sta.

MINERAL FEEDING TO RANGE LIVESTOCK

Two years' results of feeding minerals to cattle grazed on the range of the New Mexico Agricultural Experiment Station, which range joins the Jornada, are summarized as follows:

1. Earlier maturity of individuals.
2. A higher calf crop in certain localities.
3. A lower death loss among heifers when calving; much more ease in calving.
4. Heavier individuals at weaning time.
5. Less danger of animals getting bones in their throats due to mineral craving.
6. Only about 60 per cent as much mineralized salt was used as straight salt.
7. Greater net profit.

Objection to mineral feeding: 1. High cost of mineralized salt. Probably any mineral

containing available phosphorus and calcium is beneficial when fed to range livestock, but it appears that monocalcium phosphate might be the most efficient one to use in connection with mineral feeding on the range. Monocalcium phosphate not only contributes phosphorus in as large a percentage as any mineral we now have, but it also furnishes the minor mineral, or calcium, in a lesser amount. The proportion of mineral to common salt in block form used was 30 per cent mineral to 70 per cent salt. Where this mineralized salt is subject to moisture or rain, it would probably be better either to have a cover over the salt or reduce the percentage of mineral. - From R - 3 Bulletin

WHICH STREAM FLOATED MOST LOGS?

A writer in the Detroit News last spring made the statement that the Au Sable River has floated more logs than any other stream in Michigan. I question the accuracy of this statement, as I have always understood that this honor belongs to the Muskegon River. Can you give me the figures for both these streams?

This inquiry comes from Detroit, at the request of a writer who is preparing a book of reminiscences of the Muskegon Valley. Without taking the time to look through issues of the American Lumberman and its predecessors of the early days for the exact figures, it may be said that the preponderance of evidence is in favor of the Muskegon as against the Au Sable as a transportation artery for timber. Up to 1895 more than ten billion feet of timber had been floated down the Muskegon. For several years an average of 700,000,000 feet annually was handled on that stream, and afterwards for a long time the annual float was over 500,000,000 feet. In 1881, 140,000,000 feet of timber were floated down the Au Sable. If this be accepted as an average year's output, the Au Sable would be left far behind in the race for honors with the Muskegon. Perhaps some of the old timers will be able to answer this question more definitely. - American Lumberman Dec. 12, 1931.

STRANGE AS IT MAY SEEM

Why are mummies so well preserved? The archaeologists say that it was some process which involved the use of cedar and many have thought this meant the Cedar of Lebanon. More likely the reference was the juniper which even today in many lands is known as cedar and the cedar juice of Pliny and others was from the juniper. The "cedrium" which Pliny also uses probably was a pyroligneous acid containing some admixture of wood tar, turpentine, etc.

- E. N. Munns

ALCOHOL FROM WOOD

Alcohol made from wood--not wood alcohol--by an improved method in England, is declared commercially practicable where sawdust can be obtained at a dollar a ton or less and a supply of 200 tons a day is available. The process, which will recover from 35 to 40 gallons of alcohol per ton of dry sawdust, was worked out by Dr. Harold A. Auden and Dr. Walter P. Joshua, of the Distillers' Company Research Laboratory at Epsom. The process consists in forcing acidulated water containing two parts of sulphuric acid per thousand, at a temperature of 180 degrees Centigrade and a pressure of twelve atmospheres, through sawdust packed in lead-lined vessels. Under these conditions nearly half of the sawdust is changed into fermentable sugars. The molasses thus obtained is fermented with yeast in the usual way to obtain the alcohol.

- Science, Jan. 8.



SERVICE BULLETIN

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Resdon R. Ransom

Vol. XVI, No. 6

Washington, D. C.

February 8, 1932

MORE EARLY FIRE

By E. N. Munns, Washington

In 1670, William Byrd of England came to America. This Byrd was the founder of the Byrd family which to-day still is casting even more lustre upon an already illustrious name. William Byrd the first was active in many lines and became a notable figure in the struggling colony. His son, however, became even more famous, not only for his plantations, wealth, and political views but also as a surveyor, writer, and scholar. On account of his recognized qualities of leadership, Byrd was selected to establish the boundary line between Virginia and North Carolina and so settle a troublesome dispute. In spite of terrible hardships, that make Antarctic expeditions seem tame in comparison, and in spite of a defeatist policy on the part of the Carolinians with whom he had to work, Byrd led his party of surveyors due west in a straight line from the coast through the unknown Dismal Swamp and through Indian-inhabited forests to the crest of the Blue Ridge. This feat was not only a great thing in itself, but Byrd led his men to this achievement without the loss of a man, subsisting largely off the country traversed.

Each day Byrd carefully wrote up his notes, indicating the number of chains run, the slopes encountered, the number of line stakes set and where, what trees were blazed, what streams were crossed, and all other facts that pertained to the survey. This was supplemented by his detailed observations on the weather, on the character of the streams, the soil and vegetation, and such observations as the condition of the men's feet, the loss of an axe, etc.

But we are concerned now with some of his observations regarding fire, and the following entries are taken from his history of the "Dividing Line."

October 20, 1728

"The Atmosphere was so smoaky all round us, that the Mountains were again growing invisible. This happen'd not from the Hazyness of the Sky, but from the firing of the Woods by the Indians, for we were now near the Route the Northern Savages take when they go out to War against the Cataubas and other Southern Nations.

"On their way the Fires they make in their camps are left burning, which, catching the dry Leaves that ly near, soon put the adjacent Woods into a flame.

"Some of our men in Search of their Horses discovered one of those Indian camps by the Smoak, where not long before they had been Furring and dressing their Skins."

SERVICE BULLETIN

October 23, 1728

"The Mountains were still conceal'd from our Eyes by a cloud of Smoak. As we went along we were alarmed at the Sight of a great Fire, which shewed itself to the Northward. This made our small Corps march in closer Order than we us'd to do, lest perchance we might be waylaid by Indians.

"But the Desolation made there lately, either by Fire or Caterpillars, had been so general, that we could not see a Tree of any Bigness standing within our Prospect. And the Reason why a Fire makes such a Havock in these lonely Parts is this.

"The Woods are not there burnt every year, as they generally are amongst the Inhabitants. But the dead Leaves and Trash of many years are heapt up together, which being at length kindled by the Indians that happen to pass that way, furnish fuel for a conflagration that carries all before it."

November 10, 1728

"In a Dearth of Provisions our Chaplain pronounc'd it lawful to make bold with the Sabbath, and send a Party out a-Hunting. They fired the Dry Leaves in a Ring of five Miles' circumference, which, burning inwards, drove all the Game to the Centre, where they were easily killed.

"It is really a pitiful Sight to see the extreme Distress the poor deer are in, when they find themselves Surrounded with this Circle of Fire; they weep and Groan like a Human Creature, yet can't move the compassion of those hard-hearted People, who are about to murder them. This unmerciful Sport is called Fire Hunting, and is much practic'd by the Indians and Frontier Inhabitants, who sometimes, in the Eagerness of their Diversion, are Punish't for their cruelty, and are hurt by one another when they Shoot across at the Deer which are in the Middle.

EXCERPTS FROM R-6 FF DEFICIENCY LETTER

The winter snow was unusually light, and fires occurred in May on the Cascade summit on the Mount Hood where there is normally five to six feet of snow. The heavy rains occurred in March and early April, a maximum of four inches falling in one day in the Wind River Valley. Within two weeks, however, on the 22nd of April, due to the violent wind storm accompanied by east wind and extremely low humidity, a fire occurred in the Wind River Valley covering some 3000 acres. The wind storm of April 22 was the most violent of record in the region, and caused very heavy blowdown on some of the Forests in the Cascade Range. Burning conditions continued acute until the middle of June. The June rains proved to be unusually abundant and came later in the month than normal. During the period June 15 to June 30 as high as six or seven inches of rain fell in the Douglas fir region in some favored spots. The average was about three inches, which helped to restore the moisture content to its normal condition for that time of the year. ***

On the east side of the Cascade Range the cumulative effects of the ten-year drought were striking. *** The beneficial effect of the June rains was, therefore, lost on the east side in a relatively short time. Springs and creeks which had never been dry were bone dry this season. The decrease in run-off on the east side is rather startling. Dying of yellow pine and other timber along the exterior fringe of the timber growth, extending back into the timber for a distance of three to five miles, increased markedly during the season. It is probable that moisture conditions on the east side were more acute this year than at any time since an organized effort has been made to protect forest growth. ***

The incendiary fires cost \$161,000 to control, or about 32 per cent of the total cost in the Region. More than half of the 50,000 National Forest acres burned during the year were

destroyed by incendiary fires, the actual figure being 29,973 acres. Damage caused by incendiary fires amounted to \$173,000 out of a total damage for the Region of \$219,000. Out of the total of 67 extra-period fires, 46 were caused by incendiaries. The problem of the control of incendiary fires is more difficult than any other classification, since they are ordinarily set when burning conditions are at the worst, and they are usually located where a rapid rate of spread is to be depended upon. Incendiary fires were the outstanding problem of the season. These fires were not the effort of any organized group. The reports indicate that 291 were started by local people, and only 20 by outsiders. Unquestionably the unemployment situation is directly responsible for this tremendous increase in incendiary fires. The condition is more or less general throughout the Region, only six Forests reporting no incendiary fires. Most of the trouble, however, occurred on the Crater, Malheur, Siskiyou, Umpqua, and Whitman Forests. ***

The records of the Forests included in the Douglas fir region is worthy of special mention. Ten Forests are included, beginning with the Umpqua and extending north along the Cascade and Coast Ranges to Canada. East-side territory on the Mt. Hood, Columbia, and Rainier is included. On these ten Forests, with a gross area of, roughly, 11½ million acres, the total burned-over acreage was kept to 13,000 acres, which is slightly over 1/10 of 1 per cent, the Service objective. This record is probably directly due to the June rains, the burned-over acreage occurring before the June rains in this territory probably about equalling the amount burned over during the regular fire season. A pretty high price was paid, however, for this record, the suppression costs on these Forests amounting to \$217,000, or nearly half of the total for the Region. This high cost is directly due to the difficulty involved in controlling fires on snag areas in the Douglas fir region. Three fires, one on the Mt. Hood and two on the Rainier, account for expenditures of nearly \$120,000 of the total of \$217,000. The Mud Lake fire on the Mt. Hood is a very good illustration of the difficulties encountered. The cost of this one fire was about \$50,000. These high costs are directly due to snags and the volume of work which it is necessary to do in order to prevent re-burns where fires occur relatively early in the season. These three fires were all located in areas of extreme hazard. The fact that they were promptly controlled and kept to a relatively small area demonstrates that control is possible even under extremely adverse conditions, and in view of the values at stake, the expenditures were unquestionably worth while. Every effort was made, of course, to keep the costs to a minimum.

Extra period fires

During the entire calendar year there were 67 extra-period fires, or 4 per cent of the total number. Of these 20 occurred early or late in the season. In view of the unusually critical burning conditions throughout the Region outside of the Douglas fir territory, it is believed that this is a remarkably good record. The use of plows and horses on the Chelan and tractors and Killefers on the Deschutes and other east-side Forests was an important factor in making this accomplishment possible. The percentage of Class C fires, 13 per cent, was more than double the 6 per cent of last year. Incendiary fires account for 65, or 21 per cent of the total, 85 of the C fires, out of the 193, occurred either early or late in the season. Conditions which cause such a situation must receive consideration in analyzing the season's record. It is believed that the number and percentage of extra-period B-C fires is a better gauge of the effectiveness of the protective organization than the number or per cent of C fires. Perhaps the use of both is well worth while. Percentage rather than number should, of course, be used. In this connection, it is suggested that the "Box Score" be changed to include percentage of extra-period fires as well as number. ***

Plows and tractors

During the past season plow units were available on the Chelan, Colville, and Umpqua Forests. Very effective use was secured of the horse and plow on the Chelan. Final reports from the other Forests are not as yet available. During the coming season the number of horse and plow units available on the different Forests will be materially increased and every effort made to secure increased use.

During the season the Killefer outfit was redesigned and improved somewhat, and this power unit was used very effectively on the Deschutes and other Forests.

Last season the central dispatcher system as heretofore used in this Region was materially modified in accordance with the instructions in a letter which was furnished to Mr. Loveridge. The fire deputies on Forests like the Colville, Chelan, Columbia, and Rainier were relieved of their dispatching duties on a central location except during electrical storms or other very critical periods, dispatching being turned over to the district rangers and their protective assistants, or ranger alternates as they are called by your office. The central dispatcher system as heretofore used was effective on only five Forests. It is anticipated that this number will be decreased next season. There is, of course, no question but that material gains are made in inspection, training, and protection planning by having fire deputies available for field work during the fire season. An occasional break may occur which could have been eliminated by the use of the dispatcher system, but it is quite probable that the advantages outweigh the disadvantages.

Blowdown hazard

The tremendous blowdown hazard created on some six or seven Forests along the Cascade Range by the wind storm of last April was fortunately not a factor in the season's record of burned-over acreage. Man-caused fires in the blowdown areas were pretty well eliminated by closure to entry and smoking, or similar precautionary measures. Lightning fortunately did not happen to strike in any of the blowdown territory, so that no lightning fires occurred. This blowdown condition creates, over considerable areas, a suppression problem comparable to that of the snag areas in the Douglas fir region. There are extensive areas where any fire which may be started by lightning or other means would almost inevitably cause heavy loss before it could be controlled. The possibility of losing in one fire 10,000 to 20,000 acres or more is a condition which must be recognized and adequate plans developed for handling it. This hazard will continue for a considerable time and will probably be more acute next year than during the past season. Many of the windthrown trees retained sufficient root contact to keep the foliage green last summer.

A PARENT PROTESTS

By Louis S. Murphy, Washington

Are you quite sure there isn't something to be said on the side of the school administrative policy which the Milwaukee Journal inveighs against in its editorial "Women Foresters" quoted in the Weekly Bulletin of November 30? If forest conservation has a place in the elementary school curriculum why not human conservation including the use and abuse of alcohol and other narcotics, the 5-day week, and disarmament, to mention a few of many phases but without including all the various isms which certain groups think important. The really vital problems confronting society today are probably so numerous -- and none of them less pressing than another -- that there might not be enough school hours per day or week in which to deal with them adequately even if reading, writing, arithmetic, spelling, language and the other fundamentals all were entirely eliminated.

True, some of these outside subjects have already gotten into the schools. Now, pressure for the inclusion of others which seem to their sponsors as of equal or more importance have made the school authorities wake up to the menace in the whole situation. It is merely another repetition all over again of the camel in the fable who asked his master if he could just put his head under the tent to get it out of the storm and ended by getting all under with the master crowded out into the storm instead.

As a parent with a small son in the fourth grade I can speak feelingly on this question. From the very first day he started in the first grade he has had assigned home work to

prepare out of school hours because his full time at school was occupied with recitations or exercises on one subject or another. One mother is said to have asked in half fun but in whole earnest if it could not be arranged, at least part of the time, for the teacher to relieve her of the task of teaching so that she could have some of the fun of hearing her child's recitations. Taking cognizance of that situation and that feeling, though it may never have been audibly expressed to him, the principal of that school at the closing exercises last year said in all earnestness that he was at a loss to know what was to become of the situation with the ever increasing pressure to add this and that new subject to an already over-crowded curriculum.

True enough, the school children of to-day are the citizens of tomorrow, but what good is it to try to load them with the responsibilities for correcting a situation which will be past correcting when they come to exercise those responsibilities. Forest devastation unless checked by the adult citizens of to-day will all be water over the mill for these children-become-citizens-of-the-tomorrow. It will then be "just too bad."

This is not to deprecate extra curricula activities, such as 4-H club and boys and girls scout work, for such work is largely an end in itself which formal classroom work is not.

REARING FAWN ON THE PISGAH NATIONAL FOREST

Ninety-seven fawns were captured on the Pisgah District during the latter part of June and July last year, out of which eighty-six were artificially reared to shipping age. These little fellows were shipped to State refuges in Tennessee, North Carolina, Virginia, Arkansas and Georgia.

Fawn capture and rearing is an interesting business. The youngsters are picked up usually before they are a week old. If older, they are too fleet to be caught. They are usually found hidden close to the water courses and it takes a sharp eye to discover them. They are brought in to the rearing station and carefully taught to feed from a bottle. The first week of the artificial feeding process is the most critical and if they come through safely, they quickly become hardy. The strictest sanitary practices are necessary in handling milk and vessels and in keeping the pens sterilized. Any sign of sickness or infection means immediate isolation. After they are taught to feed from the bottle and are well established, they become semi-domesticated and can be turned out of the enclosures to shift for themselves and learn to graze. Each evening at sundown, they come slipping through the woods back to headquarters for the evening meal and to be penned up for the night. About September 1, when the fawns are approximately three months old, they are sturdy enough to ship and withstand change of food supply. They usually leave in shipments of five or ten, in specially constructed crates by truck or express for their new homes. - R. 7 Bulletin

YE EDITOR DISCOVERS

The Agricultural appropriation bill, including the provisions that there will be no promotions within grades, no filling of vacancies unless approved by the President, and that any money saved when a position is filled at a lower rate or is left vacant shall be impounded and returned to the Treasury, passed the House last night (January 27). Amendments offered by Representative Robert G. Simmons of Nebraska to make a further reduction of 5 per cent in Agricultural personnel in the District of Columbia and to dismiss dependent wives whose husbands are employed by the Government at a salary of \$2500 or more were defeated.

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The Forester has approved the decision of the nomenclature committee of the Forest Service to accept Ponderosa pine, the name agreed upon by the lumber industry, as the standard name for what was formerly called western yellow pine. The species has had so many common names that it has been in danger of losing its identity. It has been variously known as yellow pine, big pine, western pitch pine, Montana black pine, bull pine, and to the lumber trade as pondosa, Arizona white, western soft pine, and many others. The term Ponderosa pine will also include the wood of Jeffrey pine.

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In attempting to discover criteria for guidance and control of protection and road planning, it has been necessary to determine the average totals of protection cost and damage for representative Forests during the period 1924-31 -- the most costly period the Service has ever experienced in forest protection work. These average annual totals of protection and recorded damage are as follows for the National Forests on which the data have been compiled so far:

Forest	Protection	Suppression	Damage	Total
California	\$44,045	\$16,740	\$ 7,294	\$ 68,079
Cascade	48,945	8,808	1,751	59,503
Chelan	53,963	57,496	86,728	198,186
Coconino	23,738	6,936	1,066	31,740
Columbia	46,101	45,361	72,916	164,377
Deschutes	42,736	18,441	18,130	79,308
Ochoco	25,857	5,722	1,838	33,417
Santa Barbara	64,787	38,150	19,352	122,288
Shasta	69,932	65,178	10,158	145,268

These totals include the average annual cost of protection on account of prevention, presuppression, suppression, maintenance of protection roads and trails and other improvements, depreciation on improvements other than roads and trails and a two per cent retirement charge on the investment which has been made in protection roads and trails.

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The Forester recently designated 52,000 acres of land in the Gunnison National Forest, Colorado, as the West Elk Primitive Area. This area is located in the West Elk, Beckwith, and Anthracite Ranges, and contains the headwaters of numerous streams which flow into the Gunnison River. It contains a variety of conditions: there are dense forests of Engelmann spruce, beautiful mountain parks, canyons, cliffs, and vast fields of breccia and slide rock. The most unique formation in the area is known as the "Castles." These rocks rise with sheer walls for hundreds of feet, forming fantastic towers, domes, minarets and battlements, and when seen from a distance, have every semblance to the feudal castles of Europe.

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Supervisor W. B. Rice of the Payette Forest left Boise on January 8 for a two months' lecture tour, covering schools of forestry in the Middle West, Northeast and East. The program includes talks at each of the following schools of forestry: University of Minnesota, Iowa State College, Purdue University, University of Michigan, Michigan State College New

York State College, University of New Hampshire, University of Maine, Connecticut Agricultural College, Yale School of Forestry, Cornell University, Penn State College, and the Georgia State College.

BINOCULAR STUDY

The conclusions drawn from the study of the uses of binoculars on lookouts may be summarized as follows:

Binocular telescopes, while not indispensable to fire detection, are a valuable aid in the job and their purchase seems to be amply justified. The use of binoculars for the initial detection of fires is not desirable due to the limited field of view and the necessity for rapidity in obtaining the first indication of smoke. Binoculars are primarily useful in confirming quickly the presence of smoke in areas which appear suspicious to the naked eye. In this connection, minutes may often be saved by increasing the apparent size of the object viewed.

Binoculars are also useful in showing the true nature of false smokes as dust clouds. They may also be used in periodical close examinations of limited areas of high hazard and risk. They offer considerable value in examination of recorded strikes after lightning storms when holdover fires sometimes occur. They may prove of value in obtaining cross shots from lookouts located at such distance that the smoke would not be visible to the naked eye. The binocular also permits obtaining valuable supplementary information on the location of the fire, the type in which it is burning, and the proximity of roads or trails.

After considerable trial of instruments sold in this country, it was decided that a 6 or 7 power prism binocular with a wide field and large objectives was the most desirable instrument for lookout purposes. A larger magnification seems undesirable because of the greater unsteadiness which accompanies an increase in magnification. A large field of view is a necessity if small objects are to be located quickly and easily; and a binocular for lookout use should have a field of at least 120 yards in 1000 yards.

The size of the objective controls the illumination or brightness of object. For a six power instrument, an objective aperture of at least 30 mm is recommended.

Definition or resolving power is a most important attribute of binoculars in that it controls the ability to distinguish detail. Resolving power may be measured by observing on a target consisting of fine lines drawn so closely together as to form an angle of from 3 to 10 seconds with the eye. A binocular should be able to distinguish lines of such distance that the angle multiplied by the magnification will equal not more than 60 seconds.

Stereoscopic vision or relief is increased by an increase in the interobjective distance, and for this reason binoculars with widespread objectives are to be preferred for lookout use.

Binoculars must be in careful adjustment or eye strain will result. The axes of the instrument should be carefully adjusted for all possible interpupillary distance before leaving the factory, and should be checked periodically thereafter to make sure that the adjustment is maintained.

The literature on the construction and use of binoculars is quite extensive. During the war, the Bureau of Standards developed apparatus for rapidly testing instruments in the Washington laboratories.

Binoculars of the recommended size may be purchased at from \$40 to \$70. The expenditure, treated as a capital investment and depreciated over a ten year period, is not large when compared to the total cost of lookout maintenance and is apparently clearly justified. -

From a progress record of the California Forest Experiment Station.

EXTRACT FROM THE CONGRESSIONAL RECORD OF JANUARY 23

Mr. O'Connor is explaining the provisions of the Agricultural Appropriation bill which prohibits salary advances within grade; filling of vacancies from the date of the approval of the Act (except with written approval of the President); and requires return to the Treasury of savings resulting from vacancies left unfilled and those accruing when a vacancy is filled at a salary rate lower than that paid the previous incumbent.

Mr. O'Connor: "Every member surely is cognizant of various movements on foot for a general reduction in the salaries of all Government employees. On the other side there is a very strong determination to resist to the last such a movement. I for one have always been and shall continue to be opposed to any such general reduction of the salaries of Governmental employees. I believe it to be false economy in these times and would result in the direct opposite of the results its proponents claim would be accomplished.

"To my mind the real merit of this resolution lies in the fact that it represents a definite policy of our appropriations Committee not to cut salaries. And I so interpret it. Every Government employee should welcome it as a definite pronouncement that he need no longer fear his salary will be reduced. This proposal he should accept gratefully and I am confident he will."

The bill passed with these provisions included. Similar provisions will be inserted in all other Departmental appropriation bills.

FIRE PREVENTION CAMPAIGN REACHES 50,000 PEOPLE

To awaken the people of California to a realization of the need of care with fire, the Forest Service and the State Division of Forestry in 1931 conducted a cooperative Stop Forest Fires Campaign in the mountain camps, resorts, and towns from Lake Tahoe north to the Oregon line and in the Mono and Inyo country east of the Sierra. A special truck equipped with an electric generator and motion picture projectors was used in presenting fire prevention programs consisting of illustrated lectures and motion pictures. Shows were given in 82 places to a total of 8,545 people. Earlier in the season fire prevention programs were given in the high schools of the San Francisco Bay region and towns of the coast counties as far south as Santa Maria. A total of 159 shows were given during 1931, before 52,710 people, of which 44,165 were high school students. The Stop Forest Fires campaign will be continued this year in southern California. - R. 5 "Chips From the Forest"

AIRPLANE COUNT TO BE MADE OF ELK HERD

The State, the Biological Survey, and the Forest Service will cooperate in making a count next month by airplane of the Jackson Hole herd. Elk on the feed grounds are easily counted from a sleigh but the isolated bunches that remain in the back country are the ones that are difficult to check, and it is for counting these that the airplane will be used. Vern Carter, pilot for the Utah Pacific Airways, Ogden, flew into Jackson last Friday and demonstrated the practicability of airplane counts. - R. 4 Bulletin



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT. ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT. RESPECTED

Theodore Roosevelt

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FOREST VALUES

By H. R. Kylie, Washington

We sometimes speak of the lumber industry as a three and one-half billion dollar industry, one that employs more than a million wage earners, and whose products sell for more than two billion dollars. By not sufficiently emphasizing the other values which the forests of the Nation possess, we permit the drawing of an unbalanced picture, and one which is accepted by many as correct.

I take it as admitted that part of our effort must always be expended in Educational work. We must let the public know what we are doing and why we are doing it. Most certainly the thing they want to know is what the forest means to them. They can grasp it easiest in terms of money value.

I submit that we are not and have not been giving them a complete and well balanced picture of the meaning of the forest.

We have placed a money value on the timber, but having found it difficult to place values on recreation, water, soil building, etc., we have called such values intangible and let it go at that. Are they intangible? I would like to offer for criticism a possible approach to the measurement of forest values, and will choose Recreation first.

In economics value is taken to mean value in exchange, and the amount of money that passes in the exchange of money for goods or services is a measure of this value. If, then, we know what people paid for their outdoor recreation have we not an economic measure of its value that may be considered as at least a tentative one.

Last year nearly thirty-two million people visited the National forests alone. State Park areas received some forty million visitors and the National Parks nearly three million. This is a total of seventy-five million. Many heads have been counted more than once in the National Forest tabulation and the same heads may also have been counted in National and State Park estimates. Possibly less than half of this total figure, say 25,000,000, would be more nearly correct, but they all were seeking recreation. What was its value to them?

Forty million people went to State Parks. Are we justified in assuming that they spent \$5 per day and stayed one day? If so, the total spent would be \$200,000,000. Is this sum a measure of the value of State Parks to these visitors?

The Special Senate Committee on Wild Life Resources reports that hunters and fishermen

have increased 400 per cent in the past ten years and that they spend six hundred fifty million dollars annually to take game and fish. I have seen the figure ten million as representing the number of hunters and fishermen in the U. S. and a compilation by the Southern Newspapers Publishers' Association gives 4,420,000 for fourteen of the Southern and Southwestern States alone. For the National Forests I estimate a total expenditure of \$131,267,000. Speaking nationally, now, total annual expenditures so far are \$981,267,000 which it is suggested be considered as a value for the resources mentioned because that much money has been exchanged in order to enjoy them.

In the attempt to calculate values for the National Forests alone, I have used the American Automobile Association's Research unit figures. They say that the average tourist spends 7½ dollars per day and spends on an average 12 days on a trip. They have divided his expenses into merchandise 26 per cent, eats 20½ per cent, hotels and rooms 17.3 per cent, auto accessories, gas and oil 11.5 per cent, theaters and amusements 8.5 per cent, confectionery and incidentals 5.9 per cent, miscellaneous 10.3 per cent. They say forty-five million people took vacation tours in 1929 (a peak year), and spent three and one-half billion dollars. I quote from their study - -

<u>Per cent of Total</u>	
Far West, Great Lakes, and Southwest	59
Northwest.....	7
Northeast.....	11
Central Appalachian.....	9
"Home-staters".....	7
Southeast.....	5
Gulf and Central.....	<u>2</u>
	100

"In 1929 the average daily trip was estimated to be 234 miles as compared with 100 miles in 1919. As a result, tourist expenditures were more widely distributed. It is estimated that 33 million motorists stopped at hotels in 1929 and spent over 2½ billion dollars. Twelve million motorists camped out and spent over one billion dollars. We estimate that in 1928, the total number of motor tourists reached 44 million; 32 million of whom stopped at hotels and resorts, while 12 million either camped or patronized cottage camps. They drove 11 million cars. Hotel tourists took trips averaging ten days and spent an average per capita sum of \$7.50 a day, making a total estimated expenditure by hotel tourists in 1928 of \$2,392,500,000. Campers averaged 30 days afield and spent \$3.30 apiece a day, making a total estimated expenditure by campers of \$1,197,900,000."

Modifying this estimated \$7.50 daily outlay by eliminating the 20 per cent for eats, (a generous cut), because it would have been spent in any case and so as to apply a figure to National Forest visitors, we might assume, to be conservative, that the special permittees spent \$2 per day. Hotel and Resort guests \$5, Campers \$2, Picnickers \$1, and Transients \$3. A tabulation of values would be something like the following: The transient figure may very well be challenged.

<u>Classification</u>	<u>Number</u>	<u>Days Spent</u>	<u>Amount</u>
Special use permittees			
and guests	326,896	12	\$ 7,846,000.00
Hotel and resort guests	1,330,610	5	33,265,000.00
Campers	1,980,736	3	11,884,000.00
Picnickers	3,272,682	1	3,272,000.00
Transients	<u>24,993,591</u>	1	<u>75,000,000.00</u>
	31,904,515		\$131,267,000.00

Would it be right to say that a figure something like this represents the value of the

National Forests to these visitors? The value of our timber is what someone will pay us for it. These visitors paid out the above amount although not to us. Is it not, therefore, a measure of value?

I make no claim for the accuracy of figures I have used, since the only object is to suggest the need for correct figures and the presenting of a correctly balanced picture.

It may be claimed that the timber value of the forests of the United States is a perfectly tangible one, and may be set down in figures that will not be challenged, and that figures such as I have given here could be. But with increasing consideration and appreciation of forest values, other than timber, it ought to be possible, after careful analysis, to arrive at minimum figures for these values which would stand up under criticism, and it seems to me that the duty of a Bureau charged with the administration of a Nation's forest lands, should be to supply such figures. People have a right to expect that the Forest Service could give the best answer possible to these questions, as well as to the more intangible ones of spiritual and health values for old and young which are not susceptible to statement in terms of money.

By methods of statistical analysis, that is by taking samples and using questionnaires on recreationists, we could secure, without expending too much time or money, figures that wouldn't exaggerate too much. Each Supervisor, if a plan were given him, might readily work out for his forest, values for water, grazing, timber, recreation, and the complete picture would show a tremendous total of money values which are dependent on forests and therefore on foresters.

(Value of water will be discussed in a later issue)

PROTECTION ROADS OR ALL-PURPOSE ROADS?

By Thornton T. Munger, Pacific Northwest For. Exp. Sta.

"A network of permanent roads over which the products of the forest may be taken to market at any time is the backbone of proper forest management." This, in substance, was one of the first principles of forestry that I learned from Oberforster Karl Philipp of Baden when I visited him in the Black Forest twenty-five years ago. He was practicing it diligently in the communal forests under his management by building good roads everywhere to make possible thinnings, salvage operations, selection cuttings or shelterwood logging at any time on any part of the forest.

The principal purpose of the National Forests is the production of timber crops. What good are the crops without a harvest? And how is a harvest possible without an adequate transportation system? It is only a half of forestry to grow and protect the crop; the other half is to utilize it fully and effectively. Though much of the commercial timber of the National Forests is not needed now, the day is coming when there will be economic necessity for it. When that day comes, will the National Forests have a network of roads suitable for the transport of logs and other forest products, so that salvage sales can be made after a fire, blow-down, or insect infestation, so that thinnings can be made when the forest requires it, so that selection harvests can be conducted as often as desirable?

The western Regions are now engaged in a most comprehensive transportation study, Forest by Forest, well described in the November 1931 Journal of Forestry. A scheme of road construction is being planned for many years in the future to cost millions of dollars in each State. As I understand the study, this program of road construction is gauged largely, if not wholly, to meet certain fire control standards—"hour control." It is a transportation plan built about the one element of forestry, protection. The roads constructed on this program may or may not be serviceable for harvesting the forest crops. They may follow ridges—excellent places for fire control work, but useless for log transport roads. They

may have curves and grades that preclude the economic transport of forest products; they may or may not be routed to give easiest outlet to logical milling or marketing centers.

The present transportation study which considers only the exigencies of forest protection naturally puts the most roads where the fire hazard is the highest--in the old burns and brush patches--the last places where roads are needed for forest exploitation. Conversely it is in the mature timber stands where the forester who would practice real forestry through utilization most wants roads.

Again, a road program must look a long way ahead. The fire-resistant mature timber areas of today will be the hazardous logged-off lands of tomorrow. And the brush patches and old burns of today, which probably rightly now have first call on road construction funds, will soon be clothed with second growth forests of far lower inflammability. A program of permanent roads must reckon with this shifting fire hazard in this long-time game of forestry.

The fire control objective looms very large on our present-day, smoke-enveloped horizon, but the eminent German forester is right in saying that for the long pull, forest properties must have roads that will make possible real forest management through intensive harvesting methods. Can not the program be gauged to meet the permanent needs of both the protectionist and the silviculturist?

WHAT IS FORESTRY?

Forestry as an abstract idea has spread rapidly but forestry as the concrete, practical science of handling woodlands is far from being thoroughly understood. It is not surprising that such should be the case, for local conditions in different forest regions have made it necessary to emphasize one certain phase of forestry, as for instance fire protection, planting, and insect and blister rust control. Hence forestry has come to "mean many things to many men."

"Forestry" is a basket-like word, defined as the art or science of forming and caring for forests. It includes all phases of forest activity from planting trees to harvesting them when grown. "Forestation" denotes the application of forestry principles to woodlands and is roughly synonymous to forestry. "Re-forestation," a much-used word, means the re-planting of areas which once, recently, grew trees. "Afforestation" refers to the planting of trees on areas which have no tree growth, such as pastures or sand dunes.

The elemental concept behind the forestry idea is that forests are valuable and that they should be protected, improved, and increased. Forests should be protected from fire, disease, insects; they should be improved to increase the rate of growth and quality of product; and if there are areas suitable for forests now lying idle, they should be reforested. Forest protection, therefore, is part of forestry; forest cultivation, or silviculture, is part of forestry; and reforestation and afforestation are part of forestry. The proper understanding of these relationships is essential to a knowledge of what is meant by "forestry."

(The above was issued by both R-5 and R-6 as a news release - Ed.)

THE SOCIETY LOOKS AT THE SOUTH

By C. M. Granger, Washington

During the last three days of 1931 the Society of American Foresters held its 31st Annual Meeting at New Orleans and got a close-up of "Who's Who and What's What" in southern forestry and related problems.

Despite these trying times financially, there was an attendance of nearly 100 at the meetings, with a good sprinkling of men from distant points such as the Pacific Coast, Canada, the Lake States, and the Northeast; and 112 sat down at the banquet.

President Redington opened the meeting with a fine statement of the Society's growth and what is ahead of it, and even those in fairly close touch with the Society had hardly realized how large it has grown. There are now just under 2,000 members.

Among the resolutions was one covering the Public Domain bill, which proposes to carry out the plan advocated by the Public Domain Commission. The meeting went on record as favoring retention of the public domain in federal ownership and the administration of the range lands along the same general lines as applied to the range lands in the National Forests, and in coordination therewith.

Here are a few of the high lights chosen from some of the papers:

Dr. E. A. Ziegler in a paper giving some of the results of the study of the "Financial Aspects of Private Forestry in the South" showed that in three Florida Counties an amount equal to 67 to 167 per cent of the income from timber operations is absorbed by taxes. Over the line in Georgia, on the other hand, under comparable conditions, taxes claim only around 18 per cent.

Mr. Boisfontaine, of the Southern Pine Association, told how large a "thorn in the flesh" of the organized southern pine industry the small sawmill has been because of the vast quantities of poorly manufactured lumber which it has thrust upon the markets. The Southern Pine Association has recognized the small mill as probably a permanent factor and has done much to bring about cooperation by which the quality of the product may be improved and the high standard of southern lumber thereby maintained.

After spending nearly 150 thousand dollars trying to prove that their cut-over lands could be converted into farms, the Industrial Lumber Company at Elizabeth, Louisiana, had to admit failure. However, they did not let the lands go to the County but decided to go into the pulp and paper business, and so now are embarked on a project to grow pulpwood on these lands. They make no absolute forecast as to the outcome but seem to be very much in earnest.

Universally looked upon as the "father of forestry in the South," Henry Hardtner gave one of his characteristic talks, telling how he was forced to "show 'em" that he meant business when he preached forestry by organizing and adding to his land holdings, giving them fire protection, and watching the trees grow. He set aside \$250,000 in a permanent fund to provide money for taxes, and says "the sheriff will never get me." He said that he is now growing timber at the rate of 20 million feet a year and cutting 15 million feet so the junk heap will never get his sawmill.

Up in Wisconsin the Counties are going into the forestry business, a number of them being convinced that there can be too much farming, and permanent County forests from tax-reverted lands seem decidedly to be in the making.

Ripley Bowman, executive secretary of the Timber Conservation Board, said that without the aid of the foresters the Board would have been very much up against it, and paid high tribute to the profession. He predicts without qualification that the Board will wind up its work and go out of business by the date originally set, June 30, 1932, but thinks a permanent organization may be set up to continue the work.

If C. Arthur Bruce, a prominent hardwood manufacturer of Memphis, speaks correctly for the hardwood lumber industry, there is no place at this time for foresters in their picture, and they can not afford to do the selective logging which foresters advise. Here is a direct challenge to foresters to show whether their medicine, which has been accepted by some lumbermen elsewhere, may not be equally good for this territory.

P. A. Herbert, who now heads the Michigan State College School of Forestry, says that practically all of the forest tax laws are ineffective in obtaining the objectives of their proponents; that in the South no State has more than 2½ per cent of its forest lands listed under the forest tax law; that there must be a wholesale reorganization of the governmental

structure within the States to cut down governmental costs; and that the forest tax problem can not be considered by itself alone, but must be studied in its relation to the need of the political unit for revenue and the rest of the tax structure.

The Federal Farm Board, speaking through one of its members, Carl Williams, sees an inevitable decrease in cotton land acreage in the Southeast in the face of competition from Texas and Oklahoma, and advocates the acquisition by public agencies of considerable areas of submarginal farm land in the South for forest purposes. Mr. Williams also recommended a classification of land to determine its highest use, but spoke of doing this by small bits, taking first the areas which are sickest from the land use standpoint, rather than attempting a wholesale program over the entire United States at once.

Forester-Congressman Scott Leavitt headlined at the banquet, pleading for the retention of some of the crusader spirit of the earlier days by those who now preach forestry, and told of some of the movements in Congress which he has sponsored or pushed to strengthen forestry legislatively and financially. He is now actively pushing a bill to add another section to the McSweeney-McNary Act which will authorize and finance studies in erosion and streamflow regulation. No one can fail to be aware of Mr. Leavitt's interest in and strong support of forestry.

Seventy-five of the delegates piled into cars at 8:00 o'clock on the morning of the last day, drove to Bogalusa, and under the able leadership and rigid discipline (to keep anyone from being left in the woods) of Phil Wakeley got a fine look at the new forests which the Great Southern Lumber Company is raising by planting and fostering of natural growth. The Company entertained the visitors at luncheon and the minimum amount of speechifying was indulged in.

MR. WILSON'S TALK

By F. R. Johnson, R. 2

Mr. Francis C. Wilson of Santa Fe, New Mexico, who is a member of the President's Public Land Commission, talked before the Denver Chamber of Commerce on January 15, on the subject: "Shall the Government Cede its Land to the States?"

Mr. Wilson outlined the conclusions of the Public Land Commission and advocated that Colorado support the Evans bill now before Congress. He stated that the majority of the Commission are in favor of the transfer of the public domain to the States and eventually to private individuals to whom the West must look for permanent development.

He said that conditions on the public domain are serious, but that if these lands are taken over by the States and leased to individuals who would improve them with water developments and fences, serious erosion could be checked. Eventually, it is his opinion that these lands will come back, so that they may be sold by the States to individuals and placed on the tax rolls.

He, however, recognized that considerable of the public domain is desert and explained this to be the reason why California, Nevada, and Idaho have gone on record for not accepting the Government's offer.

Mr. Wilson did not speak at length of the erosion problem, or its interstate character, and inferred that the present deplorable conditions could readily be remedied by State and individual action.

He said that the renewable forage resource is much more valuable, in the long run, than the mineral resources which, once mined, are gone forever. It is his idea that if the States accept the public domain without the mineral rights, that eventually these may be ceded to them through Congressional action.

He referred to Map No. 1 of the Public Domain Commission Report, which he explained

was prepared by the Forest Service, showing areas proposed for addition to existing Forest units. He referred to the opposition of Congressman Eaton, of Denver, to large additions in Colorado and said that Mr. Eaton's objections are timely and well taken. He said that the Forest Service has successfully managed the National Forests but that it is extremely aggressive and, like all bureaucratic organizations, is inclined to grab all that it can get. It is his idea that the proposals for addition should be carefully scrutinized before turning over to the Service.

It is a good thing for members of any organization to hear a frank expression of what people think of them. "Bureaucratic" is a word commonly used these days, especially by political speakers.

- R. 2 Bulletin

IS NATIONAL FOREST GAME A REVENUE PRODUCING RESOURCE?

Beginning several days before the opening of the 1931 deer season and continuing for the full 30-day period, the Sierra National Forest maintained 24 hour registration stations on all roads entering the Forest. Under the Hazardous Fire Area law all hunters were requested to register both in and out of the Forest, thereby making it possible to obtain practically a perfect record of the deer killed. Six thousand one hundred and forty-five hunters were registered, an average of 207 per day for the season; 1,920 automobiles were used on the trip, each averaging 300 miles, or a total of 576,000 miles. Estimating that these cars would obtain 12 miles per gallon of gasoline, and an oil change each 1,000 miles, 48,000 gallons of gasoline and 3,000 quarts of oil were consumed- equal to 975 drums of gas and oil. The total hunters, running 3.2 men per car, traveled 1,844,000 man miles by auto and 100,000 man miles on foot. Estimating that each man shot 12 times on the trip, either at game or in testing his rifle, a total of 73,740 cartridges were used - equalling 3,687 boxes or slightly over two tons of ammunition. The records indicate that each man spent an average of 6.5 days on his hunting trip- a total of 39,942 man days - or 110 years for one man. A total of 1,400 deer were registered out - one deer to each 4.4 men - a much higher average than had been considered possible due to exceedingly dry weather and resultant noisy conditions in the woods. In 165 cases, hunters were able to secure their full quota of two bucks. The total number of deer was estimated at 100 pounds each - making 70 tons or 2 carloads of dressed venison. Contrary to various incomplete records, and to common belief, 59 per cent of these deer were better than forked horns. The actual record follows:

2 points - 574	3 points - 393	4 points - 308	5 points - 98
6 points - 14	7 points - 6	8 points - 6	9 points - 2

In addition to the \$18,435 which we know was spent for hunting licenses and tags, it is estimated that each man spent an average of \$20 for the necessities of the trip. This indicates an expenditure of \$141,000 for 140,000 pounds of meat, or \$1 per pound for venison. All of which brings us to the conclusion that the harvesting of the annual deer crop has a potential value of \$100 per head. When it is considered that there is an annual kill of at least 20,000 deer in our California National Forests, we have an expenditure of some \$2,000,000 each season that would not be spent if our deer crop failed through illegal hunting or destruction of their feed and habitat by fire. The beauty of the whole thing is that the money is spent in our own State, and affects practically every enterprise including gas stations, gun smiths, cobblers, and shoe merchants, grocery stores, druggists, garages, mechanics, tire dealers, tobaccoconists, sporting goods houses, magazine stands, guides and packers, hatters, clothing stores, etc., etc. Therefore it is excellent business for all - whether big game hunter, Justice of Peace, or cobbler - to assume a direct interest in game conservation and forest protection, always bearing in mind that breeding stock and young deer have an equal value with the legal buck.

R-5 Bulletin

EXCERPTS FROM R-9 FF DEFICIENCY LETTER

The spring of 1931 was unusually dry and windy and the transition from safe conditions to high hazard was exceptionally sudden. Beginning early in April unusual difficulty was experienced on the Chippewa Forest with "hay meadow" fires, many of which were doubtless of incendiary origin. While hay is occasionally cut from these meadows and it is claimed that the hay cannot be cut unless accumulated dead grass has been removed by burning, for several years a strong effort has been made to discourage the burning of meadows even going to the point of refusing permits to cut hay on meadows where fires had occurred. The effort has met with an encouraging degree of success until this season when so many of these fires were experienced that some local Forest Officers feel that the best solution is to burn the meadows while there is still snow in the woods around them in order to avoid the hazard which they present later if left unburned. No change has thus far been made, however, in the past policy of attempting to prevent all fires in the meadows. Beginning on April 12 a series of severe fires was had on the Oneida Purchase Unit, Wisconsin, where we were ill prepared to meet them. Due to a combination of unpreparedness on the part of the Ranger who failed to realize how rapidly the hazard period was approaching, the failure of cooperative plans previously made with the State Fire Wardens and the lack of an adequate detection system which has since been supplied, some of these fires gained considerable headway before they were discovered and several thousand acres in all were burned. Other large fires occurred on the Moquah Forest in northwestern Wisconsin where the sandy soil and light cover of grass and oak brush permit extremely rapid drying and foster fast running fires. There also we were handicapped by lack of sufficient detection and by lack of roads. The latter difficulty has been partly remedied this season and plans are under way to complete the detection system and to extend the fire line system which is a very important reliance in this type of soil and cover. One fire in May on the Moquah Unit ran eleven miles in four and one-half hours. Because of a lack of roads paralleling the fire it was hardly possible to head it but spread on the second day was prevented. Another large fire on the Oneida Unit was had in May, again traceable in part to lack of a detection system which has now been supplied. The Drumbeater fire on the Chippewa in May was the most disastrous fire experienced by the Region during 1931 and is traceable chiefly to faulty action on the part of a Ranger who has since resigned.***

The record for the year is certainly not one with which we can be satisfied but neither is it one which we believe will be repeated. In part it can be attributed to lack of sufficient detection and equipment on the new units, in part to a lack of training which is rapidly being supplied and in part to the unusual severity of the season which tested the resources on many of the Forests very severely. The severity of the season is attested by a comparison of the state-wide records with those of former years.

There are some bright spots in the record. With the exception of the two fires mentioned on September 11 and one which ran into the Superior Forest after escaping control by a State crew, the fires of summer and fall were held down very well. The record of the three National Forests in Upper Michigan is 101 fires, with a total area burned of 1,760 acres, including both National Forest and private lands. On the Marquette Forest where so much trouble was experienced in 1930, the Ranger handled 40 fires with a total loss of 124 acres. In this he was assisted greatly by a skillful use of his road and improvement crews. Blueberry pickers swarmed over the Marquette Forest for about six weeks and the Ranger issued some thirteen hundred permits to pickers inside the plantations. His resources did not permit keeping a very close check upon hundreds of other pickers who were outside the plantations. The encouraging features of the season are that there was progressively better action from spring to fall and that the "breaks" which caused the heaviest losses on some Forests were avoided elsewhere in the face of very severe trial. We shall have few if any more severe fire seasons than 1931, and there is reason to believe that most of the mistakes which were made during it can be avoided with a resulting record which will not be open to criticism. There are instances of outstanding accomplishment which encourage us very much.***



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT DEPARTER

Robert Roosevelt

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WOOD USE TO CONTINUE

By H. D. Tiemann, Forest Products Laboratory

In the face of fears and doubts frequently expressed during the past three or four years by American foresters about the future needs of lumber, it is refreshing to get from the outside a perspective view of the world situation, and to be reassured that the ground under the foresters' feet is really solid and not quicksand.

I quote from a recent publication of the Finnish Government on "The Forest Resources of the World," by Lauri Ilvessalo and Matti Jalava of the Forest Research Institute of Finland, published at Helsinki (Helsinki) 1930:

"How long can the world's forests supply the demand for timber and lumber is a question which has arisen in countries importing large amounts of lumber and wood-working products. — It has been said in some circles that the consumption of wood has reached its summit. On examining the consumption of wood products in some of the most important countries where information concerning a long period of time is obtainable, one notices that it does not show any signs of diminishing as yet. — The ———— graphs show that the consumption of timber has not merely increased but also increased per capita. All of these countries are in the front rank of industrial and economic life. The greatest possible use is made of iron, cement, etc. as substitutes for wood. In addition, as these are all coal producing countries, the use of wood as fuel is comparatively slight. Nevertheless the consumption of wood has increased with the increase of industries, which shows that wood has not lost its importance as a raw material in modern industry, but rather the contrary.

"In no other country, either, does the consumption of wood at present show any indication of diminishing. The consumption of a few kinds of wood products, such as sawmill products in the United States, has somewhat diminished per capita but in many cases this decrease is only temporary.***

"The wood market has been overflowed lately and this has given rise to the false opinion that the wood supply is abundant. The overflowed wood market is not a result of excessive forest supply, but rather the result of the poor economic conditions in many countries which have made it necessary to use the reserved forests."

Humanity evidently can not get along without wood. If the world's future demand for wood is going to be filled, rational forest care and cultivation must replace the present wasteful use of the forests.

FOREST VALUES

By H. R. Kylie, Washington
(Cont'd. from February 15 issue)

It is difficult but I think not impossible to arrive at values for water for irrigation, power, and domestic use. Our Forest Service figures show that in twelve western National Forest States in 1919 (rather elderly figures) there were 15,824,172 irrigated acres served by National Forest watersheds. The total capital invested on these lands is given as \$541,713,000 and the value of irrigated crops on them is given as more than \$621,000,000. These figures might be used to represent values dependent on the forests.

Supervisor Mendenhall, of the Angeles Forest, has worked out a value for water for irrigation and domestic uses on his Forest of \$13 per acre, and if this figure were used, we should have a valuation for the acreage served by National Forest watersheds of many millions of dollars. I have seen figures which would give a much higher valuation per acre than this, and much time would have to be put into a study of the situation before any satisfactory figure might be reached, but it seems to me that we can do this.

A total population of 3,765,000 people in 782 municipalities (1930 figures) depend for their water on watersheds wholly or partly within National Forests. In a sense, the value of this water is infinite since these municipalities must have it, but a certain measure of the value placed upon it may be derived from a consideration of the cost of the structures erected to impound and distribute the water.

Let's see what the water picture looks like, using such meagre data as are available and making a few assumptions where no data are available. Figures obtained from the Reclamation Service show that \$214,877,000 has been spent on project construction work, and that the total capital invested in land under the various projects is \$265,452,000. This makes a total of \$480,330,000 all of which invested capital depends on water. The drainage area supplying these various projects is about 262,712,000 acres. The dependent value per acre, that is value dependent on water, is \$1.83 per acre and this figure might be used to obtain an approximation to the value of National Forest drainage on say 100,000,000 acres, giving a total value of \$183,000,000.

Figures obtained from the Federal Power Commission on seven projects scattered over several regions and of varying size give a construction cost of \$62,672,580 under a drainage area of some 4,032,000 acres which gives a dependent value per acre of \$15.50, which figure again might be used to obtain an actual or potential value for power purposes of National Forest drainage.

Another method of arriving at value for power purposes would be to use a figure of say, \$200 per installed horsepower for the potential power under National Forest drainage, but the only figures we have are for Department of Agriculture permits which do not include all actual installations and there is no estimate for the potential power.

In the absence of data it might be assumed as a possibility that 25 million acres of our drainage would contribute to power. At \$15.50 per acre the actual and potential value of the water would be about 388 million dollars.

(To be concluded in next issue)

TIMBER STAND BETTERMENT WORK

By E. S. Keithley, Pike

In reading Mr. Hopkins' spirited and informative article under a similar heading in the January 25 Service Bulletin, a question has arisen in my mind. The same question, perhaps, may have occurred to others. Just how far can or should the Forest Service go in diverting National Forest receipts to places other than the Treasury?

Through tripartite land exchanges we are digging deeper each year into timber receipts. Add to this timber stand betterment work and crowd it a little - just a little - and you will find, I fear, a kick-back from the Counties who share in the National Forest receipts. What, with beautifying our roadsides and polishing our sale areas generally in many localities, is going to be the ultimate outcome of a vigorous policy under the Knutson-Vandenberg Act?

On this, the Pike Forest, it costs about \$12 per acre to plant. We could easily spend that amount and more in putting our old stagnated stands in good silvicultural condition. We use this Act now as authority to conduct Christmas tree thinning operations. Just what are, or should be, the limitations on the application of the Act? Land exchange, I believe, allows 10 per cent of the gross receipts. Suppose, under this Act, we limit the per cent of the gross receipts to 15 (a conservative figure)? The two laws cut a deep nick in the Counties' share of the gross receipts from the National Forest. Add to this the diversion of receipts under Reg. G-15 and G-16. I sense danger in the air.

Our western counties are drawing on every possible source of funds to meet current expenses. They will be needing all the National Forest receipts we can turn over to them, and won't they appreciate more the Federal Government's contribution in dollars than in investments?

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NOTE BY E. E. CARTER

Keithley sounds a note of warning that is timely. However, there are many cases in which we would not be justified in making sales, under Regulation S-2, without the ability to put the cut-over area into real growing condition through the use of the Knutson-Vandenberg Act authority. In such cases, the counties will be ahead by their share of the stumpage payments, since otherwise there would be no sale. Also, as Koch has pointed out for some white pine areas in R-1, there are cases in which the total cash return to the Treasury is larger, under the system of cutting made possible by a requirement for Knutson-Vandenberg deposits in addition to stumpage, than if less satisfactory silvicultural practices, with no such deposits, are followed.

The justification for Knutson-Vandenberg deposits tapers off from these clear-cut cases to those in which the requirement for such deposits is clearly not defensible, with the protection of the stability of county revenues one of the factors to be considered in each case. The need for stand betterment by planting, by the elimination of weed species, or by other means varies enormously. We must be sure that the need is sufficient to justify the outlay whenever the result will actually be to reduce the returns to the Treasury and to the counties, then figure what that reduction will amount to, and then decide what to do.

EXCERPTS FROM R-5 FF DEFICIENCY LETTER

The number of incendiary fires is more than double the average for 1928, 1929, and 1930. This situation is undoubtedly due to a combination of reasons. Unemployment has had its effect, although I do not believe that the entire increase can be attributed to this cause. Habitual burners have, no doubt, taken advantage of the opportunity to secure good burns after the poor success they had last year and to mask their activities to a great extent under the unemployment situation. The largest increases in the number of incendiary fires were on the California, Tahoe, Plumas, Lassen, and Shasta. The main trouble on the California was, as usual, along the west side of the Upper Lake District. No large fires resulted. Success in suppression may be partly responsible for the apparent increase in numbers since, in many cases, each separate set was caught as a small fire. The Tahoe, Plumas, and Lassen trouble was mainly adjacent to the western boundaries. A considerable

number of incendiary fires, although by no means all of them, ran in from State areas. The State organization experienced a very difficult season in the areas bordering the Sierra group of Forests, particularly from Fresno to Shasta County. The incendiary trouble in the Shasta was in the lower Sacramento Canyon and Pitt River Districts. This is nothing new, although the number of fires is somewhat greater than for any other year since 1926. I am glad to say that the incendiary situation on the Klamath was held well in hand. There were fewer incendiary fires in that Forest than there were last year and aggressive suppression held the area burned to a low figure. ***

The trouble on the Lassen began in July when it was necessary for the Forest to take action on a large State fire. This fire burned many thousands of acres in the country lying below the Cohasset Ridge. The area burned inside was relatively small and very little timberland was burned over. The State and Forest Service organizations worked well together on this fire and about 8 miles of line were put in by means of a tractor. The next Lassen fire of consequence started early in August and burned about 4000 acres near the Manzanita Chute. On the west side of the fire about 4 miles of line were necessary, 1 mile of which was through heavy brush and lava boulders. This was built by means of a tractor, using two logs for a drag. On the north and east sides of the fire existing motor ways were utilized for back-firing purposes. Some spot fires resulted, perhaps an additional 80 acres were burned over from this cause, but it is conservatively estimated that the existence of these motorways held the burned area and costs to about half what they otherwise would have been. The Bridges Creek motorway was used as a line on the north side of the fire. On the south side the original plan was also to use an existing road, but a change in conditions made it possible to go in and cold trail the fire on that side. Besides the use of the tractor on the west side of the fire a 40-Cletrac and back filler was used to fine advantage on the spot fires and in mopping up. ***

On August 29 the Trinity had a series of incendiary sets in Swede Creek, which is not far from the highway crossing on the River. This developed into the longest campaign for any Forest in the Region this year. It covered about 6000 acres before being controlled on September 8. Since that time the fire has been carefully watched, as there are still several unburned islands in very steep country. The principal difficulty in holding this fire was on account of the inability to backfire clean enough to hold the main fire when it came up. This fire and the Barber Canyon fire on the Modoc are probably the two most expensive fires that we have had this year to date, although the Lost Creek and Clover Valley fires on the Plumas may turn out to be close rivals.

The Stanislaus had to fight off a large fire in State area during August. About 3000 acres of National Forest land were burned over, all of brush and grass type along the slopes of the Merced River. The recent motorway construction in that locality was of great value both in the transportation of men and equipment to the fire and in serving as fire lines. The Supervisor conservatively estimates that the motorways on this fire and on one other smaller fire in the same general locality saved at least \$1000 in suppression costs.

In mentioning the above large fires I have, of course, left out of the picture the numerous smaller fires that were occurring every day on the principal fire Forests. The major campaigns represent only part of the fire load and on some Forests a relatively small part of it. The Shasta, for example, has had no really large fires this year, although there has been a tremendous amount of fire suppression going on. The area burned is small but the costs are high. On this Forest tractors were used very advantageously on several of the brush fires near Mt. Shasta. The Supervisor has reported an instance where recent road construction saved us a large fire. The following is quoted from his memorandum:

"The most outstanding success that we have had this year, due to recent road construction, was the Signal Butte fire on the McCloud district on July 8. This fire started at 11:10 A.M., near the water tank where the McCloud railroad train had just stopped to take on water. The fire occurred between the tracks and the fire line road which was built this spring. The travel time to this fire for Ranger Sullaway and one man was just 13 minutes

over this new road. When they reached the fire it was crowning in heavy brush and only by hard work were they able to hold this road until reinforcements arrived. The fire was controlled in the Class A stage.

"If the road had not been there it would have taken them from 45 minutes to one hour to reach this fire, by which time a large crew of men would have been required to control it the first night.

"I feel that this one fire saved the price of the construction of the road, to say nothing of the damage that would have been done."

The southern Forests have, to date, a very remarkable record, this being particularly true of the Angeles and San Bernardino. The San Bernardino had two fires in Waterman Canyon that attained a size of approximately 100 acres. Stopping a fire of that size under the burning conditions that exist on the San Bernardino is certainly noteworthy. Tank trucks provided by both the Forest Service and the State functioned to good advantage. The Angeles, Santa Barbara and Cleveland have all had fires of between 1000 and 2000 acres, but they have all been expeditiously handled and, with the exception of one fire on the Palomar Division of the Cleveland, have been controlled the first night.

FORESTRY FOR THE SCHOOLS

By Margaret Whitcomb, Pennsylvania Department of Forests and Waters

Mr. Louis Murphy's remarks in the February 8 issue of the Service Bulletin express very clearly a parent's viewpoint in regard to placing forestry in the school curriculum. However, I think perhaps Mr. Murphy was prejudiced in forming his opinion by his personal feeling for that "small son in the fourth grade." In deciding whether forestry should be added to the elementary school curriculum, it seems to me there are other viewpoints that should be considered.

Even if the citizens of today establish forests adequate to meet the needs of future generations, they can not insure their safety. Every generation must meet the problem of forest devastation. As long as carelessness exists and matches will burn when tossed among dry leaves, one form of forest devastation, at least, will be present.

The preservation of trees, unlike most natural resources, depends in large measure upon all the residents of this country. They can increase the supply by planting, and they can protect the trees as they walk, ride or camp among them.

If it is worth while for Federal and State Governments to spend thousands of dollars in maintaining timberlands and forest playgrounds, isn't it worth while to teach the children how to preserve these areas? I think that Uncle Sam, like any other land owner, should see that the children who use his property are taught to take care of it.

The personal welfare of all the nation's children depends to a certain extent upon the welfare of the privately and publicly owned timberland throughout the United States. I believe we owe it to the children to teach them to appreciate the forest heritage which will be theirs, so they can preserve their forest lands.

The future fate of forests and school children depends one upon the other. A careless child may drop a lighted match and destroy the forest. The forest may feed the flames that will send children to hospitals and poor houses, or release flood waters, where tree growth is scanty, that will carry them to watery graves.

I think we owe it to both forests and children to include in the curricula of our schools a course of study that will make them friends. I agree that children should not be overburdened with school work. But it seems to me forestry should not be a heavy weight upon their shoulders. The rudiments of forestry--all that a child or future citizen needs to know--could be covered in a single class period during Friday afternoons of one school year. In the course of study which I have outlined, the whole subject is covered in fifteen

lessons. I am confident enough time could be made available to provide for this work in the sixth grade without any additional tax upon the pupils.

MOUNT BAKER RESORT TO CONTINUE

By Jno. D. Guthrie, R. 6

In spite of the heavy loss sustained in burning of the beautiful Mount Baker Lodge in August, 1931, the resort accommodations in Heather Meadows on the Mount Baker Forest, will be open again for guests in 1932, from June 25 to September 5. While the hotel was destroyed, Heather Inn, as well as the large annex to the hotel, and the numerous cottages and bungalows were untouched by fire, and with these the management will be able to take care of a maximum of 135 overnight guests in comfort. The annex has 32 rooms each with private bath; shower baths will be put in some of the cottages, and Heather Inn will be made the resort center. All of which reflects a fine spirit of optimism on the part of the officers and directors of this large, beautiful, and unique resort plant being run under a Forest Service permit.

This resort is recognized as one of the outstanding summer resorts of the United States to be developed on National Forest land under our special use regulations.

The highway has been extended now to Kulshan Ridge, (elevation 5000 ft.) where a large parking space has been laid out and from which magnificent panoramas of Mt. Shuksan, Mt. Baker, and surrounding mountains may be obtained. Rates at the resort have been reduced and next summer daily motor coach service from Seattle to Heather Inn and the Mount Baker resort will be installed.

YE EDITOR DISCOVERS

The annual report of the National Forest Reservation Commission shows that 547,945 acres of land were approved by the Commission for purchase during the fiscal year 1931. This acreage was included in 799 tracts located within Regions 7 and 9. Total price of lands approved for acquisition was \$1,943,736, or at an average of about \$3.50 an acre.

Preliminary investigations in the southern hardwoods show that most of the heartrot of mature trees, perhaps as much as 90 per cent, had entered the trees through wounds caused by fire. Once infestation had taken place, the attack was found to extend vertically at a rapid rate, or as much as 1 foot per year. Fire and rot damage were found to be equally severe in immature trees and these two agencies combine to kill many and to injure others so severely as to make them wholly unmerchantable.

W. R. Stevens of the Weather Bureau, who has recently taken over the direction of the forest fire weather work, is undertaking a study of the development of lightning storms in connection with major storm movements across the country. He will use the data collected by lookouts on the western National Forests and is first undertaking the work for the North Pacific Region. This Region has been chosen because McArdle of the Pacific Northwest Forest

Experiment Station has gone further in plotting the paths of thunder storms than has anyone else and he has been able to furnish rather complete data to the Weather Bureau for this purpose.

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Costs and damages involving nearly \$38,000 and in some cases jail sentences were obtained successfully against 135 individuals or corporations by Region 1 during 1931, according to a report by P. J. O'Brien, Law Officer. The report reveals that 73 persons or corporations were either jailed or assessed a total of approximately \$35,000 because of carelessness or criminal wilfulness with fire in the National Forests of Montana and northern Idaho. In addition, 26 convictions or cash settlements were obtained because of illegal grazing of livestock, 27 for violation of State fish and game laws, six for theft of Government property, two for illegal cutting of Government timber, and one for forgery.

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Since the name "ponderosa pine" has now been designated as the standard name for the wood and tree of what was formerly called western yellow pine, changes should be made accordingly on pages 16, 17, and 239 of Sudworth's Check List. The wood of Jeffrey pine will also be known as ponderosa pine.

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Inman F. Eldredge, who left the Forest Service several years ago to be manager of a 200,000 acre private forest property in southeastern Georgia, is returning to the Service. He has been chosen to be regional director of the Forest Survey in the South. Active work on the Survey is now under way in Mississippi, and it will be extended throughout the South as rapidly as funds will permit.

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H. M. Shank of Region 4 is now in Washington working on the fire data for that Region, which he is analyzing by means of the tabulating card system. He is following the system that has been so successfully used by those who have made the fire record analyses in Regions 1 and 5.

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V. B. Davis, a member of the Forest Survey organization in the South, is spending approximately a month in Washington in connection with the analysis of the data gathered by the Survey crews in Pearl River County, Miss. Out of this analysis will come a final determination of the proper interval between survey lines and plots, the number of sample trees which will be necessary, and similar results which will be incorporated in the working plan for the survey in the pine lands.

CROSSING CREEKS ON THE SOUTHERN FOREST SURVEY

By Ellery Foster, Southern Forest Survey

The east fork of Hobolochitto, in flood, was crossed by swimming, and equipment and clothing ferried across on the 2 chain tape by a system patterned after high-line logging. This system will work only where the stream to be crossed can be spanned by one-half the length of "high line" available. In this case, the stream was 93 links in width. For the instruction of future crossing parties, the procedure is as follows:

- 1 - Choose a narrow place in the stream with trees located near the bank on both sides.
- 2 - Head chainman proceed as follows:
 - (a) Strip, except for belt (if you wear suspenders and no belt, the system will not work.)
 - (b) Tie the chain to the belt.
 - (c) Swim the river, rear chainman paying out chain as head chainman swims.
- 3 - Head chainman and rear chainman:
 - (a) Put line over limb of tree near river bank, as high up as possible. (Put extension on line by adding belts, etc., if necessary).
 - (b) Tie clothing and equipment to line in small parcels.
 - (c) Ferry across on tight line, rear chainman paying out line slowly while head chainman takes up slack.
 - (d) When (and if) parcel is safely landed, rear chainman haul back line for second load. (Use regular power logging signals for "come ahead slow;" "fast;" "stop;" "haul back;" "slacken down;" etc.)

Proceed as before until (and if) all clothing and equipment are safely landed on far shore. Rear chainman dive in and join head chainman and equipment. Dress, pick up line, and proceed with the survey. This system is bound to work on narrow streams. (If it is too cold to swim, the ice will be thick enough to walk across.)

THE ORIGINAL RADIO

By Leo A. Isaac, Pacific Northwest For. Exp. Sta

While the Forest Service is all hopped up over radio communication on the National Forests and the present generation is patting itself on the back for the discovery and development of this wonderful instrument for the transmission of sound, it is interesting to note that a form of transmission of sound through the air has been in use on the Fiji Islands for centuries.

The instrument is known as the "lali" or "Fiji War Drum." It is made entirely of wood, and if found on a National Forest might be mistaken for a log salt or water trough, except that it is much smaller and is made of hard, bone-like wood. It is tuned to a definite pitch by filling to a certain height with water, and other communicating instruments are tuned in with it by raising or lowering their water levels. The receiving instrument must be tuned to the same pitch to pick up the sound.

The system is used by the tribes chiefly to signal from one island to another, eighty of which are inhabited. The average distance to which messages are sent is 25 miles, and the maximum distance 180 miles.

Mr. Charles Kellogg, a naturalist who has traveled extensively in the Fiji Islands, has a set of these instruments on his ranch in the Santa Clara Valley.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER

Theodore Roosevelt

Vol. XVI No. 9

Washington, D. C.

February 29, 1932

THE STORY OF A MAP

It is not often that a newspaper reporter can take the drab everyday routine work of a forest officer and weave it into an interesting story for the general reader as was done recently by a reporter on a Bellingham, Wash., daily paper. The making of a map, and especially the way that Lage Wernstedt does it by using aerial oblique photographs and his numerous gadgets, wouldn't strike the average forest officer as offering any possibilities for a news story -- and yet below is a part of what a reporter wrote about it.

(J. D. G., R-6).

"Down on one end of Mr. Wernstedt's long table is a glass box with a series of mirrors set at 45 degree angles across its top. When he is making a map of Heliotrope Ridge, say, and his pictures lack clarity or some deep canyon will not give up its depth to the eye of his transit, he will take two almost identical prints, maneuver them into position under these mirrors in the glass box and have the prettiest little stereopticon view you ever saw. From the mirrored sharpness of detail he can see the trees stand up from the floor of the forest. Mount Baker Club's Kulshan cabin stands out in three dimensions and Razorback Ridge drops off into deep valleys as if the map maker stood on the spot seeing it. He can almost see the marmots moving about.

"For the rest the equipment of that office is extremely simple. The broad, gray-haired man with the serious face literally marked with his love of the mountains, bends over his greasy-looking map paper -- is it paraffined linen? -- and sets down the meanderings of Glacier Creek, puts in the little semi-circle of dashes which marks a ridge, makes a square black dot for the cabin and little by little achieves a complete, accurate map.***

"The goal of map making in our country is an absolutely accurate topographic or contour map of the entire United States. The Geological Survey long ago began it and much of the East is so closely mapped that every farmhouse in a given section can be found on its map. When our part of the country is mapped as completely as that we shall not need guides in our mountains. The lookout men of the Forest Service can find their fire locations much more easily. Mount Baker Club hikes can be extended to cover vastly more territory, and Herald columnists can go a-mountaineering at their pleasure.

"Working there at his maps, Mr. Wernstedt never knows when he will get a call from some of the many Forestry offices in our district to come and map some difficult inaccessible mountainous territory for them. He is the only man in the Northwest who can map by his method; the only one in the United States for that matter, I believe, though he says there

are probably many others using similar methods. I think he is drawing on his imagination.

"I have here on my desk that long paper written by Mr. Wernstedt describing his method of orienting a bit of earth which he has photographed from the air with his two cameras tilted so as to take an oblique picture.

"He says: 'The problem is essentially one of locating by resection the position and computing the elevation of the camera station from data obtained from the pictures themselves, then of measuring horizontal and vertical angles to other points for intersection and the determination of elevations. After that has been done, the topography is sketched in in the usual manner.'

"I quote that for engineers; none of the rest of us will understand it. In substance it means that our map maker attaches his picture to a piece of plate glass tilted in the same degree his camera was tilted when he took the picture." He wiggles the picture around until he has got it lying in relation to the earth exactly as the pictured section lay.

"Then he brings up his surveying instruments and surveys that mountain there on his table just exactly as he would survey it in the field, step by painful step.***

"This is a patch of cedar,' he will say, pointing to a spot on the picture. And he explains how he can tell where burned-over areas are, and where the forests of young growth, of fir, hemlock, cedar, and alder are by the texture and look of the area in the pictures. It is not hard to understand how useful such pictures are in that great timber survey they are making now. In fact Mr. Wernstedt photographed Whatcom county timber for the survey just this fall.

"These pictures will show the forestry office where our beauty sections are, so that they can be preserved; where power sites are; where roads can be built."

FOREST VALUES

By H. R. Kylie, Washington

(Cont'd. from Feb. 23 issue)

The deposition of forest litter and the soil building process is another forest value. This may defy measurement and it may be best not to attempt it. However, Alway and Zon (Journal of Forestry May 1930) have worked out a value of \$2.30 per acre for pine leaf litter in the Minnesota pine region based on the carload-lot cost of the nitrogen, potash, phosphate, sulphur, and lime contained in the litter, and W. R. Mattoon has found that similar values obtain in longleaf and loblolly pine litter. I find that we have no data of this kind for hardwood litter but have found several persons who are willing to hazard a guess that the hardwood litter analysis would give at least as high a value as the pine leaf.

There are 469,000,000 acres of hardwood and coniferous forests in the United States ceaselessly at work contributing these values to the forest floor, building soil and keeping it porous. Dare we say that \$1 per acre might represent an average value for the litter they deposit? If so, we have a total annual value of \$469,000,000 for this item for the United States as a whole and \$81,200,000 for National Forest lands. We might very well reject these figures, and say that it is impossible to measure this value. Even so, it is not an intangible. It is real and substantial, and should have a place in the picture.

By taking the F.S. estimate of 550 billion feet of timber on the National Forests and assuming a value of fifty cents per thousand, we get \$275,000,000 as a value for the timber. The value of stock grazed on the Forests last year, at prices current at the time was \$76,216,000. This is an invested value the total of which, doubtless, can not be said to depend on the forests, but much of it is so dependent and is dependent on the continuance

of good grazing practice. Perhaps we can arrive at an estimate of this dependent value if we study the matter.

A tabulation of the values discussed in these Bulletin items, set down in the order of their relative totals would look something like this.

Resource	Total Value	Source of data
Water (Power)	\$388,000,000	Based on assumption of a drainage area figure
Timber	275,000,000	F.S. estimate of volume assuming a value of 50 cents per thousand
Water (Irrigation)	183,000,000	Construction cost and land values (Based on Reclamation Service figures)
Recreation	131,267,000	Forest Service estimate of visitors and Am. Automobile Assoc.
Grazing (Value of) (Stock)	76,216,000	Forester's report and Dept. year book
Soil Building	Not practicable to measure?	Don and Alway Studies
Total	\$1,053,483,000	

This total of over a billion in values is in my judgment small.

All of the values in the above tabulation are total invested values except recreation which is an annual expenditure. I capitalized this figure at 5 per cent but the resultant amount scared me. It is \$2,625,340,000. However, for 32 million visitors it amounts to only \$82 per person which seems reasonable.

Many questions may be raised to any such figures as I have given; such as the proportion of estimated values that may be justly said to belong to the forest, and the proportion that is incidental to their management as public properties; which particular forest areas have high values and which low; and other such objections. But I would say "Let the objectors first try to evaluate before they object." What I see is the need for a balanced picture of what forests mean, and my basis for this particular method of evaluation is that if amounts such as I have found, or any others which our Supervisors may arrive at which seem more nearly correct, have been spent, or exchanged for these various factors, they constitute a measure of value. It doesn't seem to me to be enough to simply mention that we have other resource factors than timber and grazing on which we give figures if we can in any way arrive at an economic measure of their value. We gather these figures on timber receipts with estimated stand and growth and grazing receipts with value of stock grazed. Why not include the money values of water, recreation, and anything else we have in the picture. Why not have figures for both Forests and Regions on receipts from and investments in Power plants, irrigation projects and recreation areas, if they are dependent on the forests. These receipts will come not to the Federal government, but to its citizens, and the expenditures will be made by them, but we are charged with administering the Nation's forests on which these values are in some measure dependent. If we know what these values are, we shall have a better basis for planning our own investments in time and money. The suggested way of measuring them is, I believe, a sound one, and I believe, too, that such values should always be stressed when we attempt to give people a picture of what forests mean. You see - I am afraid someone hearing us talk will get the impression, if they have not already received it, that we are nothing but a timber growing outfit; one that competes with the lumbermen and does a bit of grazing business on the side.

A MANY-SIDED QUESTION

By D. Priscilla Edgerton, Washington

Mr. Murphy's "parent protest" in the Service Bulletin of February 8, and the comment of Miss Margaret Whitcomb, of the Pennsylvania Department of Forests and Waters, "Forestry for the Schools" in the February 23 issue of the Bulletin tempt one who has had some practical experience to get into the discussion. It seems to me that both writers on this subject have overlooked one important point, in their presentation of good arguments on both sides. As director of elementary forest study in State work for three years, I found what the State Forestry Commission and the State Department of Education had decided upon when the position was created - that a major benefit received from placing forest study in the curriculum of the graded schools is what the child carries into the home and the community from the school. Does not Mr. Murphy's experience instance this?

Two incidents, at least, in my practical experience demonstrate this point. During one fire season, I received an S.O.S. from a member of the Forestry Commission to go to a school in a neighborhood rife with incendiarism. The visit was, of course, made to appear as part of a regular schedule. The destructiveness of fire was talked, dramatized, and demonstrated by actual exhibits. One visit to one school could not, of course, bring about a forestry millenium, but it started talk and personal consideration of the matter in school and in homes, and for the rest of the season that neighborhood gave less trouble to the District Forester.

Incident No. 2 carried me to the court room where a "fire bug" was on trial. The accused had been surprised in the act of throwing burning matches into brush on the edge of woodland and was reported to the Ranger by two small boys, who attended a school in a county where forest study was featured. When the case came to trial, the evidence of these two boys was the evidence which convicted the defendant, who, by the way, was the son of an influential member of the community but one playing both sides in the "woods-burning" controversy. The father, seeking employment as a fire guard on the plea of conversion to protection, had himself been tried for setting fire to State lands to gain that employment, and had been convicted. It took not only courage but conviction on the part of these small boys to risk the ill-will of the lawless element of their community. Their belief in protecting woodlands, learned at school, became county-wide talk before the trial was over.

This rural side of the question is, of course, somewhat different from the urban, yet public sentiment on this subject has its Nation-wide aspects as well as its local application. There is a saying - trite, perhaps, but none-the-less timely - "What you would have in the State you must first put into the school!"

EXTRANEIOUS MATERIAL BANNED FROM BUREAU PERIODICALS

By George A. Duthie, Washington

The economy drive in Government expenditures for printing has recently caused the Director of the Office of Information of the Department of Agriculture to scrutinize the periodicals published by various Bureaus of the Department. One of the results of his study was a pronouncement against the introduction of extraneous material injected into these periodicals in order to make them more entertaining, or to fill up space. The Director has the following to say:

"A large decrease in the 1933 appropriation for printing will undoubtedly place a

greater burden upon the Addressing, Duplicating & Mailing Section which is already receiving more material for duplication than it can handle. The duplication of periodicals for the several bureaus constitutes the largest task of this section. Consequently I have recently made a study of these periodicals.

"Many of the periodicals published by the bureaus do much to keep the personnel informed of official actions. They promote a mutual understanding of objectives; they are the clearing house for bureau or divisional information.

"Business concerns and other house organs devote considerable space to purely personal items. Obviously this is done to promote fellowship and esprit de corps, but in the government we operate under many limitations that a business house does not face. The material we publish must conform to the usual certification that 'The material contained herein is necessary for the proper transaction of the public business.' Under this limitation we cannot include in our periodicals such purely personal items as vacation trips of staff members, notes of officials participating in sports, notices of births, and so on. Purely inspirational material cannot come within the limitation 'necessary for the transaction of the public business,' Jokes and other humorous material not of an official character must obviously be excluded.

"On the other hand, notices of important appointments, resignations, official trips, etc., are clearly of official interest and can be used.

"Of the 27 duplicated periodicals in the Department only 5 have been using any considerable amount of purely personal, inspirational, or nonofficial material. Several of these 5 are, I think, more readable and interesting than those that carry only necessary information, but, as I previously indicated, we operate under very definite limitations, and making a publication more interesting is not sufficient reason for using material that the law and regulations clearly forbid."

So hereafter if you miss from the pages of the Service periodicals and news letters the jokes or personal notes which you used to seek out and read first of all, just remember that when Ranger Blank gets married it is not official business.

TIMBER SALE STAND BETTERMENT

By Alva A. Simpson, Beaverhead

Howard Hopkins' queries, in the January 25 issue of the Service Bulletin, intimate that there has been lack of interest in the use of the Knutson-Vandenberg Act as a tool in silvicultural practice.

I wonder just how much lack of interest is due to "cold showers" that are thrown upon the budding ideas of those in charge of timber sales? Two distinct instances come to mind where the advocacy of the application of this Act has resulted in progress, zero-plus.

Stagnation, resulting from too thick reproduction, is a problem in more than one timber stand. Instances are known where relief from such a condition may be had through the handling by the Government from stump to possible market of the products from small pole stands.

Mature sawtimber and large pole products, in the example in mind, are salable with complete utilization to the extent of the sustained yield. The future maximum forest production may be had by using all available methods of good silvicultural practice, and not least among these is the release by thinning of stagnated stands of young growth. Definite proposal to use a part of the timber sale receipts for the purpose of thinning these stands, and, as an aftermath, selling the products resulting from the thinning, has met with a lack of success that, to say the least, is dampening to the enthusiasm of the man on the ground.

Specifically, the proposal was to use funds derived under the Knutson-Vandenberg Act to thin the stands and to provide a work fund through sale of the products resulting from the thinning. Perhaps there are legal limitations to such practice, but if the practice is sound and the results beneficial to the timber growth, it should be considered as desirable practice and the necessary legislation, if any, sought.

It is realized that the layman cannot always interpret the legal limitations of legislation, but from a study of the Knutson-Vandenberg Act, with the above problem in mind, I am convinced that it offers the means for attaining proper silvicultural practice and a greater potential production of timber where excellent demand is had for timber products.

YE EDITOR DISCOVERS

The Atlantic Building has acquired a new piece of furniture, made necessary by the advent of "Uncle Sam's Forest Rangers" to our repertoire of educational activities. A radio receiving set has been installed on the fifth floor in order that the weekly programs may be heard by members of the Washington Office. Heretofore it has been necessary for those who desired to listen-in on the program to impose upon the good nature of radio dealers about town. Consequently, very few of the force have been able to follow the vicissitudes of "Ranger Jim" and "Jerry Quick."

Those who were not able to listen-in to the programs felt a little piqued that they could not follow the fortunes of "Uncle Sam's Forest Rangers," and so it was decided to purchase a receiving set for the office. Here, we ran up against the Comptroller General's decision that the appropriation does not specifically provide for the purchase of radio apparatus. In order to purchase the instrument it was necessary to resort to the time-honored practice of passing the hat. The amount was quickly subscribed and henceforth "Uncle Sam's Forest Rangers" will hold the center of the stage at the Atlantic Building from 1 to 1:15 p.m. every Thursday.

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The constant effort to correct National Forest maps is bringing recognition from outside agencies. Recently the War Department requested the United States Geographic Board to clear up numerous conflicts between maps issued by different agencies as an aid in preparing a report on a survey of the Yellowstone River drainage. The maps of the Gallatin, Absaroka, Beartooth, and Custer (Ashland Division) Forests in Region 1, and the Bighorn, Shoshone, and Washakie Forests in Region 2 are important sources of data in this work. No good map for the new Custer Forest is available as yet. There are, however, a number of conflicts and inconsistencies that need clearing up, and the Regions concerned have been requested to act with their usual promptness and thoroughness.

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Definite word has been received from the Civil Service Commission that no examinations will be given this spring for the purpose of establishing an eligible list for the positions of Junior Forester and Junior Range Examiner.

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How much litter on an acre? In a pine-oak stand on the Bent Creek Experimental Forest near Asheville, N. C., the accumulated litter on an acre amounts to about 13,000 pounds. On a plot which burned two years ago, there is now approximately 7,300 pounds, and on a thoroughly raked plot the fall of a single year amounted to 3,700 pounds.

A NEW FOREST FIRE FIGHTING ENGINE AND PUMP

By C. R. Tillotson, District Inspector Northeastern States

At the request of Mr. N. C. Sparks, Department of the Interior, National Parks of Canada, Ottawa, Canada, two mechanical engineers of New Hampshire have designed an engine and pump that have all the appearance of being what forest fire fighters are looking for in the way of power equipment. These two engineers are Mr. Ralph L. Morgan of Richmond and Mr. Arthur A. Cushman of Keene, New Hampshire. Mr. Sparks specified that the pump must be of the displacement type and able to deliver 66 U. S. gallons at 200 pounds pressure at the pump. The engine was to be 4 cycle. The whole outfit was not to weigh over 125 pounds and so constructed that it could be easily separated into two units and just as easily set up again. These two men are high class mechanical engineers with years of experience behind them. After about a year of intensive effort it seems that they have designed an outfit which will meet these specifications. The engine itself is something entirely new in motor design. The pump, while of the rotor type, is of a new and especially effective design. Money has been raised to manufacture these outfits and it is believed that they can be in quantity production by next summer or fall.

IS LIGHT IMPORTANT IMMEDIATELY AFTER GERMINATION?

It is generally assumed that the growth of seedlings during the period they are drawing their nourishment from the food stored in the seed is independent of light. It was thought that it is only later in life, when the stored food is exhausted, that the plant becomes entirely dependent upon food manufactured by its own green leaves under the influence of light.

Recent experiments conducted by the Lake States Forest Experiment Station indicate that sunlight is an important factor in the life of the young plants long before its food stored in the seed is exhausted. If this proves to be generally true, then it may modify to some extent our forest nursery practice, explain the more rapid growth of young seedlings in openings, and enable us to understand better the needs of the seedlings in their early life.

Although the experiments were conducted in the greenhouse and laboratory with seed of common corn, the results are probably equally applicable to all other plants, including forest trees. Corn seed germinated in weak light and corn seed germinated in full sunlight showed a marked difference in their behavior. The seedlings which came up in full light utilized the stored food and grew far more rapidly than those in subdued light. When, however, the seedlings were grown in different light intensities but at the same temperature, no difference in either growth or the rate of utilization of the stored food material was detected.

The natural conclusion seems to be that it is not light as such that causes this stimulation in growth but the higher temperature that invariably accompanies stronger light.

Sunlight, through its action in warming the air and soil, tends to hasten the utilization of the kernel and the ultimate shedding of the seed coat, after which the seedling is comparatively free from danger of destruction by birds, mammals, and probably even damping off.

Since the more critical period in the life of a tree seedling is from germination until the seed coat is shed, the more rapidly the seedling can pass through this period the greater are its chances for survival. - Technical Notes, Lake States For. Exp. Sta.

SERVICE BULLETIN

ACCOMPLISHMENT

Fire Flow Performance

Table I shows the use by Forests of plows during 1931. Take a look at Table II as well.

Table I

Forest	No. Plow Units Used	Total Fire Line Built	Fire Line Built by	% Total Fire Line
		Chains	Plow Chains	Built by Plow
Bitterroot	6	2,825	1,130	40
Blackfeet	6	3,064	550	15
Cabinet	22	6,309	3,090	49
Flathead	3	633	295	47
Kootenai	15	12,600	2,861	23
Lolo	12	4,687	834	18
Clearwater	6	8,852	767	.088
Coeur d'Alene	7	7,009	1,871	27
Kaniksu	7	7,934	2,780	35
Nezperce	11	2,663	1,400	53
Pend Oreille	7	4,050	1,136	28
Selway	6	5,240	1,936	37
St. Joe	5	1,779	391	22
TOTAL FOR REGION	113	67,655	19,041	28

Note: These data were compiled from Circular O-67-W, and include only fires that plow units were on.

Table II

RATE OF FIRE-LINE CONSTRUCTION BY PLOW
CHAINS PER EFFECTIVE MAN-HOUR IN DIFFERENT TIMBER TYPES

Yellow Pine	Western White Pine	Lodgepole Pine	Douglas Fir	Larch- Douglas Fir	Spruce	Reproduction (Old Burn)
2.00	.67	.85	.73	.96	.36	.44

Note: Chains per effective man-hour include right-of-way clearing and trenching.
Weighted averages have been used.
These data are based on average output of the Remount plow units during the season of 1931.

New Year Resolution:- Let's step 'er up for 1932.

Goal:- A 50 per cent Regional average.

Tactics:- Get the outfit on the job, then USE IT.

Reward:- The satisfaction of knowing that you "made 'er snappy."



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER

Theodore Roosevelt

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BEAUTY VS DISTRACTIONS

By Roy Headley, Washington

In their report on the Public Values of the Mt. Hood Area, Messrs. Olmsted, Merriam, and Waugh make a casual reference to a fact that deserves emphasis. In the course of a very penetrating discussion pro and con of the satisfactions to be had from a cableway to the top of Mt. Hood they refer to the distasteful clutter a cableway would produce on the top of the mountain - platforms, railings, old ladies watching Junior to see that he doesn't fall off the mountain, auto drivers wondering if that soft tire would have to be pumped up, etc. The authors then make this significant remark:

"But it must be borne in mind that the more deeply any one is capable of being impressed by the noble inherent qualities of the views from the peak the stronger is the impulse to avoid or ignore any petty distractions which can be ignored****"

I pass by the delicious humor of the fact that these authors were reporting on the view from a peak which they say they did not visit and hasten to say that they nevertheless said a mouthful in this quotation. I am grateful to them for formulating something which has so often been in my mind as I listen to people who say that the charm of a mountain road is ruined if selective timber cutting or a borrow pit or an uprooted stump is visible from it; or that the presence of sheep or cattle in a scene destroys its esthetic thrill; or that a summer home spoils the beauty of a canyon.

If a man claims to be truly sensitive to the beauty of a mountain road or a mountain meadow or a rugged canyon but contends that he can't ignore the borrow pit, or the stump of a tree that has been harvested, or the flock of sheep, or the summer home, and therefore can't feel beauty and delight - well, I want to give point to the remark of Olmsted et al by asking this delight seeker how sure he is that he is truly sensitive to the beauty he claims he desires. Maybe he should go to a psychiatrist to find out if perhaps he may not be pretending to the possession of a sensitiveness that he really does not possess. Possibly he is not really talking about his capacity to thrill to beauty but about what some propagandist has told him about how stumps and borrow pits ruin a road or sheep destroy scenery (except in the Alps).

Most woodsmen thoroughly dislike crowds of sightseers, but isn't it true that such irritations fade away from one's consciousness when confronted by something of real beauty to which one happens to be sensitive?

Those of us who have had the rare privilege of traveling the back country in the Mt. Hood in the spring when Tom Sherrard puts on his annual wild flower show will recall how much dreary, snag infested burn we crossed. But was our appreciation of the truly marvelous display of wild flowers diminished by the desolation of the burns? No. Not in my case anyway, even though I am inevitably sensitive to the depressive influence of a burn. My delight in the flowers was not diminished when they happened to occur in a setting of old burn.

It's not necessary to overemphasize the fact that given real beauty and a real sensitiveness to it, distractions make little difference. No one will deny that beauty is entitled to a proper setting or that offensive things in an environment may at times restrain or even destroy the mood of appreciation. But, I thank these authors for their gentle debunking of some of the opposing overemphasis.

PAYING ROADS

By L. A. Barrett, R. 5

If all our Forest Development road projects brought in annual returns to the Treasury as do many of the stub recreation roads built in Region 5 in the last few years, there would not be any difficulty in convincing Congress that Forest roads do pay.

Following are listed 10 typical cases where the road expenditure was made for the sole purpose of opening up special use residence tracts:

<u>Forest</u>	<u>No. of</u> <u>Projects</u>	<u>Length of</u> <u>Roads (Ft.)</u>	<u>Cost of</u> <u>Roads</u>	<u>No. Lots</u> <u>Surveyed</u>	<u>Lots Rented</u> <u>in 2 years</u>	<u>Annual Rental</u> <u>of Lots Rented</u>
Eldorado	6	12,420	\$3250	160	117	\$1755
Mono	2	6,100	830	69	53	795
Tahoe	1	5,280	700	14	7	105
Stanislaus	1	2,640	250	18	8	120
<u>Totals</u>	<u>10</u>	<u>26,440</u>	<u>\$5030</u>	<u>261</u>	<u>185</u>	<u>\$2775</u>

In these 10 cases some 5 miles of road was constructed at an average cost of about \$1,000 per mile. At the end of 2 years the annual revenue in the form of lot rentals is 55 per cent of the total cost of the roads. And this during two years of financial depression. In one case on the Mono Forest 20 lots were made accessible at a cost of \$297 and every lot was rented in 2 years; the annual rental now exceeding the total cost of the road.

During the past year the Eldorado Forest spent \$1,000 on 3500 feet of road to make 30 lots accessible and every lot was rented by the time the road was completed. Annual rental \$450. By the judicious expenditure of small amounts of road funds there are numerous other attractive locations in Region 5 where the same results can be obtained. The above results were secured without any advertising. We just built the roads and the business came to us.

THE FUTURE OF ASPEN IN THE LAKE STATES

The enormous acreage of aspen in the Lake States (some 22 million acres), its small utilization, its universal decadence and short life, make many people look with justified doubt upon aspen as a crop of economic importance. The possibilities of converting aspen by artificial means to pine and spruce are seriously discussed. In this discussion the tendency toward natural conversion of aspen to other types, particularly hardwoods, is often overlooked.

The forest surveys conducted by the Lake States Forest Experiment Station in Wisconsin, Michigan, and Minnesota, covering more than one million acres of aspen land, throw some interesting light upon the present composition of the aspen stands and, hence, their probable future.

To begin with, there are few aspen stands that are 100 per cent pure. Most of the "pure" aspen stands contain only from 50 to 65 per cent aspen and many stands classed as aspen contain as little as 30 per cent of that species. This refers to trees one inch or over in diameter. The other species in mixture are either inferior hardwoods (paper birch, red maple, jack oak, ironwood, and black ash), which make up from 10 to 30 per cent of the stand, or the better hardwoods (sugar maple, yellow birch, basswood, red and white oak, white ash, and elm). These, too, may form from 10 to 30 per cent of the entire stand. And finally conifers (jack, white and Norway pines, balsam, spruce and, in some places, hemlock) that may comprise from 4 to 10 per cent of the total stand.

Since all these species are much longer lived trees than aspen, they will eventually, if not disturbed by fire, take the place of the aspen.

The character of reproduction, that is, trees below one inch in diameter, may serve as an indication of the future composition of the aspen stands. The striking fact is that most of the seedling reproduction in aspen stands is not aspen. On loamy soils, in Wisconsin, over 50 per cent of the entire reproduction was found to be of hardwoods, principally sugar maple with some small amount of white pine and spruce. On the sandy soils, the better hardwoods may form only one-fifth of the entire reproduction, but the inferior hardwoods are quite prevalent and there is usually a sprinkling of jack pine or white pine, and in wet places balsam fir or spruce. This would indicate that, on the heavier soils, aspen is being changed naturally into hardwoods and the change is relatively rapid. Considering that over millions of acres there may be found upwards of 200 trees per acre of better hardwoods in the present aspen stands, the conversion should be well advanced within the next 25 to 50 years. On the sandy soils, the conversion is toward jack, Norway and white pine and, in some places, balsam, but this process is slower than the conversion to hardwoods.

Fires or clear cutting of aspen on either sands or loams may throw it back into pure aspen.

If the aspen stands are left to nature and not disturbed by clear cutting or fires, they may, within another generation, present an entirely different silvicultural and economic aspect. The presence of a large number of better hardwoods in many of the aspen stands augurs well for their future. - Technical Note, Lake States For. Exp. Sta.

EXCERPTS FROM A RADIO LETTER BY JACK HORTON, R 6

"We have, or rather I have, been concerned somewhat about the durability of the Semi Portable radio-phone set. I told the boys in the radio-phone laboratory that I was going to push it off the table someday, so they beat me to it. There are 6 tubes in this set. They snubbed down 4 of 'em with rubber pads. Left 2 loose and then gave the set a 14 foot drop to soft earth. Threw it off the house. Two un-snubbed tubes jumped out of the sockets and broke. They shook out the broken glass, put in two new tubes and without adjustment put the set on the air and carried on conversation with a station 60 miles away. No damage to set at all except tubes. If all tubes had been snubbed as we will do, the 14 ft. fall would not have damaged the set at all. We took a strip of movie film of the test.

"We will give the little portable the same test. Looks like the boys have put the Semi Portable together to stay.

"Heintzleman of R.8 was down in connection with the new boat etc. and called at the Lab. We put on a demonstration for him. The plan is to install a Semi Portable on the boat for test purposes this summer. Maybe the Semi Portable will serve them; maybe the tests will show the need for a slightly larger set. Anyway the test won't cost much and if they can't use the set we can bring it back to the States and use it. No loss this way.

"We are all set for the bids when we hear from R.1 as to their requirements. The Chelan and Umpqua are all planned for. Personnel plans all worked out for this summer.

Believe that season of 1932 will tell us definitely where we go from here. Frankly the whole thing looks too good. We haven't had enough hard going to make me feel that everything is O.K. Everyone seems to be sold on it. Surely there must be a kick-back somewhere. I've showed the rig to rangers, supervisors, asst. supervisors, fire assistants, central dispatchers and what have you and all want it now. Seems too easy to sell. I have to hold back and do the knocking and criticizing. Surely we will find some sort of difficulty this summer in the field. I almost hope so.

"Did I tell you the little portable has been shrunk again. Its so small now you can almost get it in your pocket. The weight still remains at 10 pounds complete. It has a splendid receiver and lots of power for its size and weight. I believe we have under-rated our power in both sets. Maybe we need this reserve for peaks of interference.

BIG GAME PROBLEM DISCUSSED

Big Game was discussed recently by Mark Anderson of Provo at a meeting of the Inter-mountain Section of the Society of American Foresters.

He estimated that there were 60,000 deer and 3,000 elk in Utah in 1931, as compared with only a few thousand in 1905.

Comparing the value of game with livestock, he said there was not very much violation of game laws by stockmen, but that these men destroyed a good many predatory animals, thus helping the game. Mr. Anderson does not think that domestic stock should or ever will be displaced by game in Utah, since domestic stock are of considerably more value to the State. He brought out the fact that over-utilization of range by stock, however, results in more conflict with game and stated that if game is properly managed, hostilities on the part of stockmen are less likely to occur.

He said that if the fish and game associations and those administering game problems would make more use of State institutions and colleges for gathering information, there would be fewer mistakes.

He advocated increasing the prong-horned antelope (there being about 300 in south-eastern Utah) by water development and reducing predatory animals. He said the big horn sheep, which has disappeared from the Wasatch Range, should also be restored and suggested trying out the transplanting of moose from the Yellowstone Park to the High Uintas Primitive Area.

He said the public is in need of more information regarding big game and favored creating a commission made up of representatives of sportsmen, livestock interests, State and Federal agencies, many of whom are at present investigating various phases of the big game problem. - From R. 4 Bulletin

CY'S SHOVEL

By H. R. Elliott, Malheur

Of all the visitors who drop into our office the most interesting is our genial and jovial friend Cy Bingham, Sheriff of Grant County, pioneer of the Forest Service, and one of the best known and liked men of eastern Oregon. Recently, Cy dropped in for a copy of the last issue of the "6-26" and left with us his old Forest Service shovel. A battered and worn shovel this, not much to look at even if you are fond of shovels, but rich in Forest Service lore and early history. On the handle has been inscribed the familiar "Cy. J.B." with the date 1903. As we gathered around, Cy told us of the first fire the Forest Service ever got a conviction on in the State of Oregon, the first fire this same shovel had the pleasure of robbing of its fuel.

During the spring of 1903, a tramp sheepman named Canning moved in to the east side of Davis Lake in trespass, this being the legal range of Malone Bros. After the sheep were settled, he set a string of fires in a half-circle a couple of miles around the sheep to keep out the varmints. Charley Malone hunted up Cy, but before they got back to the lake Canning had scented trouble and moved the sheep off. The fire was put out by Cy, and Supervisor Smith Bartrum brought the case before the Federal Grand Jury. The Grand Jury promptly dropped it, for in 1903 no one considered setting out fire in the woods as a crime of any consequence. Undaunted, Supervisor Bartrum hunted up the members of the Grand Jury that evening and plied them with solid and liquid refreshments, while between bites and drinks, he, all unawares, sold them the idea of forest protection and their duty to mankind in the Canning case. The next day the case was reconsidered, Canning was indicted, pleaded guilty, and paid a fine of \$100, and thus was justice aided in the days of 1903!

DON'T BURN UP THE GAME

"All grouse, pheasants, quail, geese, most ducks and many of our most useful song birds build their nests on the ground. Some species begin nesting before all the snow has vanished. All the upland game birds and many varieties of ducks are preparing their nests and laying their eggs before the frost is out of the ground. Many species are incubating their eggs before corn planting time.

"The evil practice of spring burning of fields occurs at the height of these ground nesting activities and results in a tremendous destruction of bird life.

"No fields or marsh areas should ever be burned except in cases of necessity, for vegetation is needed not only for nesting cover but also for food and shelter.

"If such burning must be done, do it in autumn, but never in the spring."

The enclosed warning is found inside of every box of shot gun shells sold by Gamble Stores. If the third paragraph of this notice were changed to include "forests" it would fit our situation. - M. R. Hickel, Black Hills.

A FAN LETTER

Fan letters are to the producer of radio programs what applause is to the orator or musician. Commercial advertisers may measure the success of their programs by the response of the buyers, but the broadcaster of educational or public service programs must depend upon the fan mail to tell him whether his program is finding an audience. That "Uncle Sam's Forest Rangers" is acquiring a fan audience is evident from the gradually increasing volume of fan mail that is coming in. This response which started with the first episode has been wholly spontaneous, since no direct bid has been made for fan replies. The following letter is the type of applause which warms the heart of the program producer.

National Broadcasting Company,
Chicago, Illinois.

Gentlemen:

I'm wondering if it would be possible to switch the Ranger part of the Hour on Thursdays to the start of the program, rather than leave it where it is -- starting at one o'clock. My reason for asking is this: school opens at 1:05 in the afternoon and my two boys, as well as thousands upon thousands of others, are denied one of the most fascinating, educational, and uplifting things to be found anywhere in the Country.

Much of the things coming over the air are questionable. A great deal of it is ex-

cellent. The same may be said for literature and other things. Therefore, a program like this one is something I am most anxious to have my boys get, if possible. Both were ill one day when the program was coming in and since then we've had to fight to get them to go back instead of staying to hear the program and be late for school.

Sincerely yours,

/s/ W. M. HART

York, Pa.

YE EDITOR DISCOVERS

After consultation with the President, Secretary Hyde this afternoon (February 24) announced a fifty per cent reduction in the fees for grazing domestic livestock on the National Forests during 1932. In doing so, he emphasized the fact that the reduction in the prevailing rates is an emergency action solely; that the rates heretofore in effect were fair and reasonable and that the present reduction of rates is effective for one year only. The rates which prevailed in 1931 will be applied for the season of 1933.

"A careful investigation shows conclusively that stockmen of the West who have grazing privileges on our National Forests will experience great difficulty at the opening of the coming season," Secretary Hyde said. "In many parts of the West deep snows have forced the purchase of an unusual quantity of high-priced feeds to keep flocks and herds from starvation. This, added to other emergency conditions, has persuaded us that the relief is desirable."

Secretary Hyde commended the Forest Service for its general policy in administering grazing privileges. "The Forest Service has not been unmindful of the general livestock situation," he said. "It has studied various methods of altering the present system of payment without impairing its long-time administrative policy of fixing fees on a fair and reasonable basis. The present reduction must not be construed as a change in this long-time policy but as an emergency relief measure in which the Chief of the Forest Service fully concurs."

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The directors of the American Forestry Association, at a recent board meeting, adopted principles which they believe should be included in laws dealing with the administration and conservation of the Public Domain of the United States. These principles are:

"(1) Include a clear statement of Federal purpose to protect and advance the public interests through the beneficial use and conservation of the grazing, forest, and other natural resources of the Public Domain, the prevention of erosion, and the maintenance of favorable conditions of waterflows.

"(2) Authorize and direct the Secretary of the Interior or other appropriate department to determine as rapidly as possible by study of local conditions and by land classification the specific areas which should be retained in public ownership in the form of grazing reserves or districts, National Forests, National Parks, National Monuments, and Federal Game Refuges.

"(3) Authorize the President to withdraw lands which are considered suitable for Congress to include in National Forests, National Parks, and Federal Game Refuges.

"(4) Authorize the President to create by proclamation grazing districts from Public Domain lands.

"(5) Authorize and direct the Secretary of the Interior or other appropriate depart-

ment to inaugurate as rapidly as is feasible an adequate administration of Public Domain lands, and to make rules and regulations for their occupancy and use in conformity to the purposes set forth under (1) above and to provide penalties for violations thereof.

"(6) Authorize and direct the Secretary of the Interior, or other appropriate department, after completion of the classification of the lands, to formulate a plan for the final disposal of the lands not recommended for inclusion in public reservations, whether to be granted to the States, or to be continued for disposition under existing public land laws, or for retention or disposal under new plans and procedures that may be recommended by him, consistent with the prior liquidation of all other outstanding grants, scrip, warrants, or other obligations.

"(7) Provide an adequate appropriation for the initiation of the administration of the use of the Public Domain and for the proposed classification authorized in the Act."

The following resolution was also adopted at the meeting:

"RESOLVED, That any reorganization or consolidation of the activities of the Federal Government relating to the administration of the public lands and reservations, should be based on the principle of bringing under one departmental direction the agencies which are concerned with the production and conservation of (1) crops and plants serviceable for food or environment for men and animals, and (2) plants and forests serviceable for soil and water protection, fibres, woods, and other plant products."

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Two new primitive areas in Region 5 have just been created by the Forester. They are the Devil Canyon-Bear Canyon Primitive Area embracing 56 square miles and including the entire drainage basins of Devil, Bear, and Chileno Canyons in the Angeles National Forest; and the San Rafael Primitive Area of 117 square miles located on the main crest of the San Rafael range in the Santa Barbara National Forest. The Devil Canyon-Bear Canyon area covers the mountainous country in the vicinity of Mt. Islip, with elevations reaching over 8,000 feet. The San Rafael area includes Bald Mountain and Big Pine Mountain which reach over 6,800 feet elevation.

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Region 2 and Region 6 are at present rivals for the honor of naming one of their National Forests after former President Roosevelt. Region 2 desires to apply the name to the present Colorado National Forest, while Region 6 is equally eager to bestow it upon the present Crater National Forest. The complication is the reluctance of the former President's family to sanction the promiscuous use of his name and their belief that if it is used at all it should be confined to one specific feature of outstanding importance. Their general attitude toward the thousands of proposals heretofore made has almost invariably been negative.

RAILROADS LARGE TIMBER USERS

The railroads of Pennsylvania require 450,000,000 to 500,000,000 board feet of lumber annually. They are the largest single wood consuming industry in the State and use more lumber than the State's entire lumber cut, which is from 300,000,000 to 350,000,000 board feet per year. The railroads of the country are the direct purchasers of 17.5 per cent of the annual lumber cut of the country, and directly or indirectly consume 25 per cent of the total.

Sixty-seven per cent of the crosstie requirements of Pennsylvania's railroads are imported, but the growing and cutting of ties continues to be one of the most profitable forest industries for forest owners in the State today.

- Pa. Dept. of Forests and Waters Service Letter

POSTERS, CHIPMUNKS AND SAPSUCKERS

By Walter J. Perry, Deschutes

A recent article in the North Pacific's monthly, the Six-Twenty-Six, originating on the Cascade Forest, about a cloth sign found overgrown by wood around the edges, makes me think how interesting it would be in 2132 for some brawny woodsman to rive the heart of a giant fir and there find the legible remains of a cloth National Forest Boundary poster signed, say, by Wilson. But that will never happen in central Oregon. Our older boundary posting was done with cloth, but for many years the only vestige remaining of the original posting has been a smooth place on the bark bordered by rusty tin "buttons" held on by still rustier shingle nails, and on younger trees partly overgrown.

Working in the closed files I find this in a Ranger's report on boundary posting, dated 1918:

"Considerable boundary work was done here in 1913 but the cloth signs were used. These are all so badly damaged now that it will be necessary to re-post the boundary."

This lack of durability is not chargeable to the weather, but to the particularly enterprising and progressive brand of chipmunks and pine squirrels we have. A sign is hardly more than posted before Mrs. Squirrel sizes it up, and after careful measurement rips off enough for a dress pattern, bathing suits for the children, and perhaps enough for curtains for the pantry.

Paper tags fare little better. There is a sapsucker with a case hardened nose, that appears to think there just must be something mighty interesting hidden under each one, and he proceeds to peck them full of holes and pull them off. Recently while marking timber on the Pine Mountain burn salvage job I had occasion to tag a lot of trees, using note book sheets folded twice, to designate "don't cut" trees. A few days later I found these papers at the base of the trees, pecked full of holes, and the bark where they had been perforated by "prospect holes." Just "'satiabile curiosity," I calls it.

WHAT ABOUT THIS?

Dear Editor:

I note on page 8 of the Service Bulletin for February 1 a paragraph giving honor to the Muskegon River for having floated more logs than any other stream in Michigan. I happen to have on hand evidence showing that perhaps the Muskegon River will have to share this honor with the Menominee River. The Michigan Land Economic Survey in its Menominee County report says that 10,633,300,000 board feet of logs were floated down the Menominee River in the years 1868 to 1910, and that in the year 1889, which was the peak year in the pine lumbering industry, 642,100,000 board feet of logs were scaled on the Menominee River. This material was taken from a book entitled "The Northern Peninsula of Michigan" by A. L. Sawyer, published in 1911. The Department of Commerce extra census bulletin No. 5 of July, 1891 reported that the port of Menominee, including Menominee and Marinette, was the largest lumber port in the world. Of course it may be contended that Michigan must share this stream with Wisconsin.

Very truly yours,

/s/ Wade DeVries

Taxation Economist.

Forest Taxation Inquiry



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Theodore Roosevelt

Vol. XVI No. 11

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March 14, 1932.

SOME OF OUR ACCOMPLISHMENTS IN 1931

OPERATION

By Roy Headley

Despite adverse climatic conditions during 1931, the fire control organization of the Forest Service gave an excellent account of itself. The area burned over inside National Forest boundaries in 1931 was held to a figure of 640,000 acres, which compares very favorably with the average of 594,000 acres for the previous five year period and with the area burned and damage for the comparable "bad" years since the National Forests were created.

Notable advances were made during the year in numerous phases of the fire suppression problems, such as the speedy mobilization of large crews on project fires, rapid construction of fire line, greater use of mechanical tools in fire line construction, greater use of airplanes for transportation of men and supplies, and the successful control of fires within the first burning period.

The greater use of airplanes in the transportation of men and supplies to areas poorly equipped with roads is particularly significant. This development undoubtedly marks a revolutionary stage in our use of airplanes and in our road development programs for back-country areas. Airplanes played a significant part in getting men and supplies to inaccessible areas under normal conditions as well as in emergencies. They were used in increasing the mobility of the key men of the fire control forces and were pressed into service on several occasions in transporting badly injured men to cities where adequate medical attention could be given. As a result of this development of the use of planes several Regions are giving the construction of landing fields high priority in their improvement plans.

The construction of improvements, principally roads and trails, was advanced materially during the year by the two unemployment relief measures. While our appropriations for improvements will be reduced in the fiscal year 1933 partly on account of these special appropriations, the improvements constructed under emergency appropriations are in place and are being used now.

A forward step was taken in standardizing equipment, formulating specifications, and planning the consolidated purchase of equipment, by the Spokane Equipment Meeting and by the Regions and the Supply Depot subsequent to the meeting.

In the field of equipment, Beatty's bulletin on radio has been published and Simson and his associates have made notable further progress. The field will have the last word in

photo-survey cameras available for use in 1932, as a result of Osborne's painstaking labors in 1931. The use of the new centrifugal locomotive spark arrester is spreading to railroads all over the country. While the Forest Service did not develop the arrester, it provided the "push" needed to get it into use. The use of the kapok bed developed by Region 1 has spread to other Regions. Steady progress has been made in the development of improved protection road and fire break and fire line building machinery and excellent cooperative relationships have been established with the manufacturers of such equipment. The fact that a trainload more or less of equipment surplus to other Government agencies was obtained for the Forest Service should be mentioned under this heading.

All records were broken in the passage of legislation for the Government Island warehouse for the Supply Depot and Region 5. Some of the development work on the area has already been completed and the plans for the buildings themselves are well under way.

Region 1 carried through to completion a large scale reorganization project involving a majority of the Forests in Montana; Region 3 has recently reduced the number of Forests by one, by consolidating the Datil with the Manzano (now Cibola) and the Gila; and Region 8 has executed a pretty complete reorganization so skillfully that not one single kick has reached Washington. Numerous consolidations of ranger districts have also been made.

Our training work has received recognition and approval by the Personnel Classification Board and the Council of Personnel Administration. Methods of training have been improved and Regional training programs have been extended to include classes of personnel not previously participating.

While the following cannot be classed as constructive accomplishments from a Forest Service point of view, they should be mentioned in this statement because of the amount of time devoted to them both in the field and in Washington. I refer to the preparation of the six-year improvement plans and collateral reports required by the Federal Employment Stabilization Board; the 1932 unemployment relief estimates over which we all labored so conscientiously; bigger and better appropriation estimates (as far as paper work is concerned); and the greater than average number of calls for special reports by outside agencies.

LANDS

By L. F. Kneipp

The year was marked by a number of circumstances rather disruptive of normal Lands activities. An abnormal fire season in several Regions, the pendency of new public domain policies and legislation, an enormous job of land evaluation in connection with the Northern Pacific suit, the decline in timber sales with its consequent reaction on Land Exchange, all operated to modify the nicely prepared plan of work. The year, however, was by no means a total loss so far as progress in Lands work was involved.

Departures from the general policy, of postponing action on public domain lands until the report of the Public Domain Committee was finally decided, occurred in the additions to the Ashley, Boise, Washakie, and Cache Forests. Meanwhile intermittent attention has been given other suitable additions and data are available for reports upon almost any addition that may be proposed. The present Congress has before it a number of bills contemplating the extension of National Forests, some of them to include non-timbered land chiefly valuable for streamflow protection and grazing use. Action upon such bills may determine the present attitude of Congress in a very definite way.

The problem of the future status of the revested O & C grant lands received more constructive attention and analysis from the people of Oregon than ever before, and the tendency to consider their inclusion within National Forests appears to be stronger. The possibility exists that these very valuable forest lands may yet be placed in a satisfactory and permanent status.

A number of boundary adjustments were made which promise both to facilitate and to reduce the cost of National Forest administration. Through an extensive series of readjustments in Montana the Missoula, Madison, and Beartooth Forests were combined with others; while in New Mexico the Datil was partitioned between the Gila and Manzano Forests, the latter being renamed the Cibola. In Idaho important readjustments were made between the Nezperce and Selway Forests.

Land exchange business suffered from the depressed condition of the timber industry. Much of such stumpage as was available for tripartite exchanges was required to consummate approved cases and new commitments were consequently limited, in some instances impossible. This was unfortunate at a time when valuations were lower and opportunities for desirable exchanges better than at any preceding period since the general exchange laws were enacted. The total number of cases approved by the Secretary of Agriculture during the year was 107, as against 157 the preceding year. However, the consummation of the fourth exchange with the State of Michigan enlarged the National Forest area by 74,922 acres since the State selected unreserved lands. Exchanges with Montana and Washington were practically completed except for a few scattered tracts embraced in water-power withdrawals. The Oregon exchange also approached completion. No specific projects for the studies of large bodies of private lands within or near Forests were reported although much information on the subject is being accumulated; to which the revision of the Capper report will also contribute much of value.

In acquisition work every condition was favorable except that of availability of funds. At the close of the year all available appropriation balances had been over obligated by the approval of some 815 cases involving 353,435 acres at a cost of \$1,443,201. The initial acquisitions in the Green Mountain Unit of Vermont were approved and many desirable consolidations authorized. At the time of the December 14 meeting the available balance was about \$204,000, while options on hand or in sight totalled nearly one million dollars. If the 1933 appropriation bill had carried the customary \$2,000,000 for Acquisition, all of it could have been obligated on very advantageous terms before the fiscal year began. In the State of Wisconsin three additional purchase areas were defined to complete the Federal program in that State, but were passed over by the Commission at its last two meetings. Both official and unofficial agencies in the State are strongly urging that the Commission approve these additional units as a means of defining the ultimate limits of the Federal program, even though no purchases can be made therein for several years, so that the State and private programs of management can be properly coordinated with the Federal program.

The much desired Recreational handbook has not yet taken form; but several Regions made good progress in recreational planning and in public campground improvement, though not so much in securing wider cooperation from other agencies. Due to the complications of the public land situation no effort was made to secure legislation authorizing withdrawal from entry of lands valuable for recreational uses. Although bills were introduced to authorize expenditures for the technical recreational development of the National Forests, they failed of passage, not because of Congressional objection to that principle but because of their other section which would have raised the maximum area allowable under term permits to 80 acres.

During the year, four experimental forests, eleven natural areas, and thirty-six primitive areas were approved. Otherwise the classification work was light, and notwithstanding the profound economic changes which have occurred appeals for changes in classification to permit of forest homestead entries were not greatly in excess of preceding years.

In the special-use work the formulation and expression of a Service-wide policy to govern the use of lands abutting on Forest highways and roads was the outstanding feature. The policy has received general acceptance and approval and, effectively applied, will obviate or neutralize demands for other forms of remedial action. The effort to have the area allowable under term permits increased from five to eighty acres was not successful, several Members of Congress effectively indicating their opposition to the proposed change while the bills were before Congress.

During the year, the Director of the National Park Service advised the Forester in detail of the various areas of National Forest land which, in his opinion, should be transferred to the National Parks. Current reports on such areas were submitted by the several Regional Foresters concerned. With one exception these reports were negative to the proposed transfers. A letter to the National Park Service stating the position of the Forest Service with reference to each specific proposal is now in course of preparation.

During the year a fresh study was made of the record of past action by the Forest Service upon applications for mineral patent and upon unperfected mining locations in conflict with administrative requirements. The periods covered by the reports of different Regions varied considerably. In substance, the study showed that the Service had acted upon 14,932 claims, of which 12,772, or 85.5 per cent, had been favorably reported, and 12,859, or 86 per cent, had gone to patent. A re-statement of the mining claim situation in relation to National Forest management and values was also prepared and submitted to all Regions for comment, which was furnished, after which the statement was redrafted in Washington. In view of the existing public lands situation, the release of the statement has not yet appeared expedient, but it is available in the event that its use becomes necessary or desirable.

One of the outstanding Lands jobs of the year was the evaluation of the two and three-quarter million acres of National Forest lands claimed by the Northern Pacific Railway in satisfaction of alleged deficiencies. These lands are situated in twenty-five National Forests in four different States; and represent every practicable variation of site quality and cover condition. The work had to be done just prior to and to some degree during a bad fire season. By the close of the year the data were in such form as to permit discussion of values with the Northern Pacific representatives, but for various reasons the discussion has been postponed to about April 1.

FOREST MANAGEMENT

By E. E. Carter

In sales, the year was one of adjustment to conditions caused by the business depression. This gave opportunity for some needed changes in policy and involved much work in specific cases due to low rates of operations or shut-downs. Among the major policy matters handled were:

1. A redefinition of the utilization policy to be followed in National Forest sales. The accumulation of data on the economics of handling logs of various sizes and qualities gave an opportunity for adopting a policy of basing utilization requirements on those data instead of on the indefinite "customary practice in the more efficient operations" in the vicinity. This adds greatly to the work of the logging engineers in appraisals.
2. The adjustment of the policy of restricting new sales during the period of depression in the lumber industry, to adapt that policy to actual conditions and at the same time hold firmly to the accomplishment of its purpose.
3. A policy of liberalism in extensions of time of existing contracts was reaffirmed, in view of the difficulties of the lumber industry. No purchaser was forced to operate in order to retain his contract.

In planting, the Denver Planting Conference was the outstanding event of the year. Its results included a thorough review of Service policies in the activity, the diffusion through the organization of much information on methods, and a distinct stimulation of interest in and enthusiasm for the work. All of the annual planting reports have not yet been received, but it seems probable that more acreage was planted, including some areas replanted after the 1930 drought had killed the trees formerly put out, than in any other year in the history of the Service. Preliminary and fragmentary reports indicate that 1931

was a year of good survival of planted stock in most Regions. Our nurseries were never in as good condition as now, with especially notable progress made in Regions 7 and 9.

In pest control, it is too soon to measure results accurately, but the organization of the white pine blister rust work in Region 1, and the improvements in organization, methods, and administrative efficiency on the insect control jobs in Regions 2 and 4, are noteworthy. The fall job of Douglas fir beetle control on the Shoshone Forest seems to have been remarkable for its low costs and good organization under Logging Engineer Donery. The obtaining of cooperation from the owners of intermingled or adjacent stands was a feature of the insect control efforts in Regions 5 and 6.

Nothing especially noteworthy is claimed in the field of timber surveys - just a lot of badly needed hard work done economically and well in all Regions, without any grand-standing or advertising. Full reports are not yet available.

RANGE MANAGEMENT

By C. E. Rachford

In future years 1931 will be referred to as the year when: Prices of livestock reached the lowest record, largest number of banks failed, stockmen went broke, an unprecedented drouth was broken, and the most severe winter ever experienced was ushered in. We have had periods of depression and drouth before, but none stands out quite so vividly as the one through which we have just passed or are passing. It is human nature always to consider present difficulties the worst, and we can only hope that the record year of 1931 will be succeeded by happier times.

That conditions in 1931 have made our work more difficult must be conceded. Under the circumstances we feel justified in setting up as our first accomplishment "We have just about held our own." Adversity, however, has its own rewards. The long-continued drouth has made us look more carefully at range capacities, and while it is too early to determine to what extent some of our ranges are permanently injured it seems certain that more conservative stocking and better management practices for a few years will be urgently demanded. In consideration of the present deplorable condition of the livestock industry, adjustments will be more difficult and Forest officers will be afforded an opportunity to exercise all the tact and ingenuity they possess. No doubt the conditions have been responsible for a great deal of dissatisfaction on the part of the stockmen, resulting in many more complaints than usual. That field officers have adjusted most of the cases without serious difficulty is an indication of the degree to which attention has been concentrated on this phase of the work.

With the knowledge that drouth has had a serious effect upon our ranges we begin to question our policy of stocking on the basis of normal conditions. It is evident that some revision will be necessary. Information now available indicates that we have held our own in 1931 as compared with 1930 in numbers of stock allowed to graze on the National Forests. A slight increase of 1 per cent on cattle has been offset by a decrease of 2.8 per cent on sheep on a stock months' basis. We find also that the actual use of the National Forests in 1931 as compared with previous years on a stock months' basis represented an increase of .4 per cent for cattle and a decrease of .6 per cent for sheep.

In the field of range management it is interesting to note that plans were completed for 72 per cent of the cattle and horse allotments in 1930, and that during 1931 an increase of 6 per cent was made. Plans were completed for 73 per cent of the sheep allotments in 1930 and for 80 per cent in 1931. Reports also indicate a decrease of 5 per cent on cattle and sheep allotments lacking a satisfactory plan of management. The 1931 reports further show that 75 per cent of the cattle allotments and 77 per cent of the sheep allotments were properly stocked, which indicates very little change from the previous year. Practically

the same number of allotments for the two years on both cattle and sheep have the proper seasons -- 88 per cent in the case of each class of stock.

Perhaps conditions on our western Forests are somewhat responsible for the decline in numbers of cattle allotments on which distribution is satisfactory from 84 per cent in 1930 to 76 per cent in 1931.

Never before in the history of the Service have range improvements been of such value as during the 1931 season. The development of a large number of springs and other watering places has made it possible in practically all Regions to carry a greater number of stock through during the entire season than would have been possible without such development. Furthermore, temporary adjustments between allotments have greatly aided the stockmen in the emergency. While refunds have been granted in cases where stock had to be removed from the Forest before the close of the season on account of drouth conditions, it is evident from the data on numbers of stock actually grazed that relatively few had to be removed.

In the way of protection to the land, it may be of interest to note that on areas infested with rodents 2,600,000 acres, or more than twice the acreage treated in 1930, was treated in 1931. This work, of course, was done in cooperation with the Biological Survey.

Decided progress was made in practically all Regions in a study of the game problem. Notable accomplishments on critical areas in Regions 3 and 4 were made. Management plans have been developed for critical areas in Regions 1, 2, 3 and 4, in most instances with the active cooperation of State officers and local game associations.

The study of the fish resource has continued satisfactorily in most of the Regions, and development of specific plans for individual streams will shortly be in order.

During the year agitation for the protection of brown bear in Alaska increased tremendously. Thorough consideration of the problem develops the need for a well rounded-cut game management plan on Admiralty Island, properly coordinated with timber management.

We hope at the end of 1932 again to be able to state that we have held our own, but we may have to report in our next year's statement "lack of accomplishment" in certain directions.

ENGINEERING

By T. W. Niercross

In my opinion the major accomplishments of the Branch for 1931 can be summarized as follows:

The working out of a plan for determining the size and location of the Forest water power resources, together with methods of evaluating land and water for power and the determination of the use of greatest value in case of conflicting uses.

The decision by the Federal Power Commission and the President that the field work of the Commission should be handled by the Departments of War, Interior, and Agriculture.

Expenditure of about \$5,000,000 on road and trail work during the first six months of the year -- a period when normally the expenditures approximate \$700,000. With some exceptions and in spite of many difficulties, the road work was efficiently handled. Work was started within a few days of the passage of the Emergency Appropriation Act and pushed with great diligence. Employment of labor on the projects themselves amounted to over 500,000 man-days. For all operations, it is estimated that at least 90 per cent of the total amount expended has already gone to labor in some form.

A vast purchasing program, aggregating in excess of \$1,400,000 was pushed through expeditiously and economically with vast savings to the Federal Government and with elimination of many dangerous factors and conditions earlier existing. To date the Controller has not raised objection to any purchase.

Field tests and office studies were completed for determining the performance on different road gradients of various size, makes, and designs of cars and trucks.

PUBLIC RELATIONS

By A. B. Hastings, Acting

In the spring of 1931, and after many unsuccessful attempts before previous legislatures, a bill was passed by the Arkansas legislature providing for a Forestry Commission, for the appointment of a State Forester with technical training, and for a forest fire protection program. No money was appropriated by the State for carrying on the work, a responsibility which will be passed on to the 1933 legislature. Even so, the passage of this measure may represent a step of major importance to forestry in Arkansas.

Two new States have been added to the Clarke-McNary law, Section 2, fold during the past year, Nevada and Hawaii. In the case of Hawaii cooperative fire protection was made possible through an amendment to the Clarke-McNary law effected by Resolution No. 121, approved February 20, 1931.

In spite of the depression, all but a few of the State cooperative projects were sustained or expanded during 1931. The grand total of funds budgeted for the fiscal year 1932 for fire prevention alone is \$5,546,060, the record to date. The corresponding figures for 1931 and 1930 are \$5,062,813 and \$4,616,950. The above is a tribute to the stability of the State forest protection projects, and Clarke-McNary law cooperation has been an important factor in their stabilization.

For several years Public Relations has been working on a new scheme of compilation of forestry laws with classification by subjects and by States. During the past calendar year this compilation was completed for all the 48 States and 3 Territories except for a part of the new legislation enacted in 1931. Copies of the laws of all States upon specific subjects will eventually be available upon call, in limited numbers.

A large part of the time of the Clarke-McNary law Inspectors during the first half of the year was devoted to the Extensive Revision of forestry facts which has been carried through by Research, and concerning which R will no doubt report.

During the fall a chapter on forest fire protection was prepared for possible inclusion in a proposed publication by Director Demmon on forest fires in the South.

One hundred seventy-three Wheeler lectures were given to an estimated total of 40,650 people in addition to 16 talks over the radio.

The Central States Forestry Congress had its second successful meeting during the year, through which the forestry interest in the Central States was substantially advanced. This meeting owes a considerable measure of its success to the Clarke-McNary Law Inspector for the Central States district.

Significant policy statements have been made during the year on the following subjects:- The Future of Cooperative Effort in Forestry (Annual Meeting of the Western Forestry and Conservation Assn.); Forest Fire Protection - A national Interest (May, 1931 Journal); Some Financial Aspects of Cooperative Forest Protection (Annual Meeting of the Society of American Foresters).

Under a special assignment, the Chief of the Branch made a report for the Timber Conservation Board on "Possibilities of Cooperative Management of National Forest and Private Lands." This was based upon a special field study made by him during the summer.

A determined effort was made to more effectively correlate estimates of forest fire damage received from the different States. It will be noted by an inspection of the statistics for 1930 that progress was made, there being less serious difference between the estimates of damage per acre for that year than for the previous year.

Activity in the development of subject matter information on farm practices in planting, growing, utilizing, and marketing of timber as a part of the Farm Forestry Extension work is indicated by the following publications "Planting Black Walnut" (Leaflet No. 84); "Shortleaf Pine" (F.S.1671, Revision); "Four Important Trees in Forest Planting" (Yearbook article); 4 illustrated envelope inserts or stuffers on the subjects of cutting pulpwood,

managing hardwood stands, thinning pines, and forest fire prevention, (in press).

A study entitled "Community Forest Fire Fighting Equipment" was made during the year at the request of the National Fire Protective Association. This study will probably be published as an Association bulletin. It constitutes the first Forest Service contribution of its kind to the National Fire Protection Association.

A special project set up for itself in 1931 by Public Relations was a check up on the information given out by the Division of Information as to (1) accuracy and (2) the effectiveness of its method of presentation. The first inquiry led to the extensive revision of the forest statistics by the Branch of Research. It also resulted in discarding some material which was considered misleading or an exaggeration of facts. The second inquiry led to the new dramatic type of radio program. It also brought out the need for greater dissemination of forestry information prepared in a simple popular style that will be read by the average layman.

New trends noted during the year were: a demand for briefer articles and short paragraphs, increasing interest in forestry study in schools, resulting in a greater call for educational material for children.

The volume of publicity matter sent out during the year 1931 was about the same as for the previous years. Press releases and clip sheet items numbered 165. Special articles, news-photo layouts, rewrites of regional office releases, etc., were sent out frequently. Direct aid was given to 224 newsmen, feature story writers and authors, who called at the Washington office. Approximately 1500 letters were written during the year in response to special requests for information. This does not include those written in connection with educational work in schools and clubs of which there were about 2500 requests. From teachers and pupils about 400 requests were received for material for use in the preparation of forestry notebooks for the contest put on by the American Forestry Association last fall. Ten traveling exhibits were loaned to 53 schools, 4 museums, and one boys' camp and were shown to 30,740 persons. Wood samples were loaned to 215 borrowers.

The manuscript, "Our Forests, What They are and What They Mean to Us," prepared for the use of teachers and club leaders and members was prepared and will be published during the current year. Two tree description sheets, "White Pine" and "Longleaf Pine," intended for teachers, were prepared and rotoprinted.

Arrangements were made with the National Recreation Association for cooperating in supplying forestry material to recreation leaders. At its request, four articles were furnished to the National Recreation Association. The cooperation of the United States Office of Education was secured in making available to school teachers information on forestry material and publications.

The demand for lantern slides is increasing; 12,956 were loaned to individuals in 30 States and the District of Columbia, and 118,000 persons saw them. Five hundred new slides were added to the collection. Almost 700 slides were sold. Most of these were purchased by colleges and State forestry departments.

The use of radio was developed to a very appreciable extent. Occasional lectures were given by various members of the staff. Most of them were delivered in the National Farm and Home Hour program and the Forest Service was also represented in the weekly review of Department activities given in this program. Material was also furnished for the manuscripts of radio programs sent out by the Department to cooperating stations. At the beginning of the year the Western Farm and Home Hour was started. It is broadcast from San Francisco over an N.B.C. system of ten stations. The western Regions have contributed regularly to this program.

During the year, plans were laid and arrangements made for the new serial program, "Uncle Sam's Forest Rangers," which went on the air the first of this year over a network of 44 stations. This takes the place of the special lectures on the Farm and Home Hour. The program immediately made a hit. On February 1 it was also started on the Western Farm and

Home Hour Program in place of the regular weekly lectures. Consequently, "Uncle Sam's Forest Rangers" now covers the Nation.

In visual education three silent motion pictures were released, "Smoke," "Timber-r-r" and "What Price Fire," also one sound film "Forests or Wasteland." Forest Service films were shown to 1,845,000 people last year. Our exhibits were viewed by 4,670,000 people at 225 exhibitions. One exhibit 45 feet long by 21 feet wide entitled "Forest Fires or Game" was made and layouts for two were designed. Seven colored panels were designed and constructed for Regions 3, 4, 5, and 6. For the State Capitol exhibit at Salt Lake City 24 large and 26 small enlargements were painted.

Fifty-one issues of the Service Bulletin and six issues of the Forest Worker were published. Other publications either prepared or edited in the Division of Information were the Report of the Forester, 20 Yearbook articles, 34 Forest folders, 10 bulletins, circulars, and leaflets, the manual amendments, and two issues of the Service Directory which was enlarged to include all regular field employees. Requests were prepared for 633 printing jobs including the above publications, 18 technical publications, 13 reprints, and job printing of all kinds. The largest job printing order was 221,000 fire signs. By pooling the requisitions from all Regions into one order which involved 109 kinds of signs there was a saving in cost of \$330. Arrangement was made with the Superintendent of Documents to distribute the signs directly to the Regional offices, which relieved this office of considerable expense. Of the several hundred consignments of these signs only one failed to reach the proper destination.

YE EDITOR DISCOVERS

The effort to have mountains or other natural features named for members of the Forest Service who lost their lives in the Army during the World War is progressing. At the meeting of the U. S. Geographic Board on March 2 approval was given to the naming of mountains for Charles E. Simpson (R-3), John L. Mooney (R-5), Hubert C. Williams (R-4), and Marcy M. Meaden (R-2). Approval was also given to the naming of a group of three lakes on the Stanislaus Forest as "Lewis Lakes," in honor of Bert Lewis (R-5), this action being recommended by the Regional and Forest officers because there is already a Lewis Mountain on the Stanislaus Forest. A total of 11 features have now been named for men appearing on the Forest Service War Memorial. Two other cases are pending before the Board, as is also the recommendation for the naming of a mountain on the La Sal National Forest in honor of Rudolph E. Mellenthin, who was killed during the World War while attempting to arrest a draft evader. Action on these cases is delayed because there is record of other names for the features involved, and approval by the Board is doubtful in at least one case. Recommendations for the remaining six names on the War Memorial have not yet been submitted.

Mooney Mountain has been shown on the maps of the Angeles Forest since 1920, but the name had not been confirmed by Board action.

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An Upper Mississippi soil erosion station has been established in the bluff lands of southwestern Wisconsin. The station includes a farm purchased by the State of Wisconsin on which the Bureau of Chemistry and Soils, Agricultural Engineering, State of Wisconsin, and the Forest Service are cooperating. Investigations will be made by the cooperating agencies in such things as best methods of agricultural practice to prevent erosion, the possibility of developing pasture as a means of controlling erosion, and the development of farming

machinery and methods to be used in hilly lands of the type encountered in this section. The Forest Service, under the leadership of C. G. Bates, will make a study of the run-off from pasture and forest areas and will endeavor to work out means of controlling erosion in the streambeds and in the bottom of gullies.

From this area in southwestern Wisconsin millions of cubic yards of material have been dumped into the Mississippi River. The region is one having a loess soil, which washes very badly when once the cover has been disturbed. Most of the erosion in this section has been due to man's activities, particularly in the field of agriculture. Improper methods of cultivation, pasture management, and inadequate handling of run-off water which collected from buildings, roads, and the like, have been responsible for much of the damage. Work on the project is starting this spring.

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The bill, H.R. 9642, to authorize increased appropriations for road construction after passing the House was promptly reported out of the Senate Committee on Post Offices and Post Roads. It will probably come up for consideration in the Senate at an early date. This bill would carry an authorization of five million dollars for Forest roads and trails.

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The Forester has approved the establishment of the Kawishiwi Experimental Forest within the Superior National Forest. This experimental forest will give the Lake States Forest Experiment Station a unit on which to concentrate a considerable part of its investigative work.

"WHAT'S IN A NAME?"

On February 22 Regional Forester E. W. Tinker announced an agreement with the Women's Clubs of Wisconsin for tree planting in the Argonne National Forest. In another press release of the same date "National" Forester E. W. Tinker announced plans as to the Memorial Forests, and in a third release of the same date "Federal" Forester E. W. Tinker reported that the National Forests of Michigan entertained 322,852 visitors in 1931.

It beats time the way those three fellows are making things hum! - E. A. S.

AN EARLY FOREST FIRE

In 500 B. C., Hanno, a Carthaginian Admiral, established a number of colonies along the western seaboard of Africa, apparently not so very far south of the Strait of Gibraltar. The record of his experiences tells how the mountains near the colony appeared at night when on fire, as columns of flame illumined the sky. These fires were set to provide feed for the sheep and cattle, and to make travel easier. - E. N. M.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT BECAUSE

Theodore Roosevelt

Vol. XVI No. 12,

Washington, D. C.

March 21, 1932

SOME OF OUR ACCOMPLISHMENTS IN 1931

RESEARCH

By H. S. Betts, Acting

Division of Silvics

The year just passed has witnessed further enlargement of forest management research. Appropriation increases granted by Congress were specifically for new work in prairie planting, natural reproduction studies in the Southwest, planting investigations in the Northeast, work on the growth of northern hardwoods, and increased fire research in the Northwest. Congress also provided funds for preliminary work on an erosion-streamflow study in the Appalachians, and for extending the erosion investigations under way in the chaparral region to the pine forest of the Sierras.

Some contributions to forestry during 1931 are given briefly below:

A method of analysis was developed by which the percentage of accuracy desired for any given forest condition or type of information can be balanced against cost of making surveys of extensive areas.

Analyses of Service data on the effect of lightning on telephone communication and equipment on lookouts showed that though monetary losses were small, serious delays in communication were caused by lightning and that there was no assurance that lookouts were fully protected from injury through telephone wires. Reconsideration has been given specifications for lookout telephone lines.

The use of chemicals is feasible in girdling worthless species.

A definite relationship appears to exist between the extent of bark scorching and basal fire scarring in hardwoods.

The nature and condition of the organic layers of the soil is perhaps the most important single factor governing streamflow and erosion in the southeastern mountains.

Root competition and shade are the primary causes of the failure of yellow poplar regeneration.

Logging without reference to future production in the mountain hardwoods results in material understocking and stands of poor form and of the less desirable species.

Loblolly pines completely liberated by cutting grow as fast after liberation as free trees of the same diameter class.

Systematic burning of young longleaf pine retards growth and development of this species, which has a relatively high resistance to fire.

Field studies show that in the Middle Atlantic States at least, mycorrhiza are of universal occurrence on all forest trees.

Success in underplanting is a matter of light as well as moisture. Most conifers in the Lake States make moderate growth when they receive 25 per cent light, but need 60 per cent for good growth. Norway pine must have more light than white pine or white spruce. A definite correlation exists between height growth and light intensity of underplanted Norway pine.

Woodland pastures in the Corn Belt are being pastured out of existence. Steers pastured in farm woods do not there find adequate feed.

Tests of pine gum production from French faces made with a new tool devised by the Southern Station indicate that during the first year 22 per cent more gum is obtained from French than from American faces of the same width, and during the second year 28 per cent more.

Gum production is definitely correlated with temperature.

Duff moisture was found to be the best criterion of fire danger in the Northeast and is directly correlated with evaporation. Fires do not readily start when the duff moisture is 30 per cent or greater.

Some 50 volume tables were prepared, most of these for eastern species where tables were either missing or wholly unsatisfactory.

Volume tables for trees in stands apparently apply equally well to the residual trees on cut-over areas, as the general tendency is for the released trees to assume a form that is average for the stand.

Forest soils are more porous than similar agricultural soils after a period of use. Plantations restore the porosity of soils to about that of the virgin soil in less than 20 years.

Forest soils in the Mississippi bluffs absorb much of the rainfall, whereas nearly half the rainfall runs off from abandoned agricultural lands. Erosion from the latter type of soil amounted to over 400 times as much as from the forest and was largely mineral matter as contrasted with the higher percentage of humus from the forest area.

Ten times as much water ran off from a plot under cultivation as from a plot located in a 20-year old black locust-orange plantation.

Under the direction of Forest Measurements, the training system inaugurated several years ago expanded. Three men finished a year's detail to Washington, and three more undertook new work. In addition, special details for periods ranging from a week to several months were provided for field men with particularly difficult problems. One foreign forester is participating in this research training.

Division of Forest Economics

One of the major accomplishments of the year was the so-called "Extensive Revision" of the estimates of forest areas, timber stand, rates of depletion and growth, and related matters. A report for the Timber Conservation Board based upon the results of this project was virtually completed by the end of the year. The total forest area available for commercial production is estimated to be 496,000,000 acres, and the total saw timber stand on January 1, 1931, was 1,668 billion board feet. The total annual drain on the forest, in terms of standing timber is estimated as slightly over 16 billion cubic feet, or a little more than twice the growth of usable material. In terms of saw timber the drain amounts to 53 billion board feet a year, against a growth of about 10 billion feet.

The Survey field work in the Douglas fir region has gone so far that it can probably be largely completed this calendar year. During accidents the report should be ready in 1933. It is already obvious that existing figures on the volume of hemlock and hardwoods in the region are far too low. Already use is being made of the maps by lumber companies

and consulting engineers in sizing up the sustained yield possibilities of certain units, and by the State Forester in classifying land under the new forest tax law. Preliminary work in the South has shown that sufficiently accurate data can be obtained for economic units of 3 - 5 million acres by running lines ten miles apart and plots every ten chains. Regular work is under way in Mississippi where substantial cash cooperation is in sight.

The study of the financial aspects of forestry in the southern pine region was continued. A report on Washington County, Florida, was published by the State Forester. The studies that have been made so far bring out very clearly that satisfactory returns from southern pine forestry are possible, particularly in the naval stores belt, but that such returns can not be expected from the present sparsely stocked stands or from premature cutting or turpentineing of small trees. Because of fires, turpentineing, and inadequate stocking the average rate of growth over large areas is very low, although the rate on selected small areas is high.

In studies of the economic aspects of selective logging in typical Douglas fir operations, it was found that as much as 50 per cent of the timber that has been cut on the average operation in normal times was cut uneconomically, and that more money could have been made by leaving it standing. It has also been found that much of the heavy machinery which is particularly destructive to the forest also results in unnecessarily high logging costs. Progress was made in studies of the adaptation of logging machinery and methods to selective logging and improved forest management in the Douglas fir region.

In connection with an investigation of the question of public control over private forests, a compilation was made of the status of public control in foreign countries. It was found that very few countries attempt to require sustained yield management or to prescribe methods of management. Most of the important countries, however, except the English-speaking ones, require that forest cover must be maintained on lands where it is considered necessary for preventing erosion, stabilizing streamflow, or preventing injury to the public welfare or to the property of others.

The forest insurance study was continued in the Pacific Northwest. Reports of fires were analyzed and field studies were made of the effects of fires under various conditions, as a basis for insurance ratings. The relation of climatic conditions to fire hazard was also investigated.

The study of the "New Public Domain", or the reversion of land to public ownership as a result of tax delinquency, was undertaken in 16 counties of northern Minnesota. The situation in 6 townships was examined in considerable detail, for the purpose of determining the relationship of tax delinquency to location, ownership, and type of land.

Compilations of stumpage and log prices for 1928, 1929, and 1930 were published as statistical bulletins 32, 36, and 37. These were based on approximately 12,000 reports covering sales of 31 billion feet of stumpage, and 13,000 reports covering over 17 billion feet of logs. A manuscript of a bulletin covering 1923 - 1927 was prepared, and compilation of the reports for 1900 to 1922 was well under way by the end of the year. Interesting price trends, varying greatly between different species and regions, have been developed. The figures show that timber sold individually by species usually brings more than timber sold in a lump at a flat rate, without distinction as to species. They also show that both stumpage and log prices tend to increase with the nearness to consuming centers.

The Forest Taxation Inquiry, having completed the intensive study of conditions affecting forest taxation in selected counties, made a survey of the workings of all the forest tax laws of the various States. Four progress reports were issued of which one, dealing with the tax laws, was issued for the special use of the President's Timber Conservation Board and not given general distribution. The preparation of the comprehensive report of the Inquiry was carried forward.

Division of Forest Products

The contract for the new Forest Products Laboratory building was awarded in August, 1931. The work of construction has gone forward rapidly, and it is expected that the new building will be ready to occupy by late summer (1932).

Considerable progress was made in the work under way to improve wood construction methods. Test work on bolted joints was completed, and a report is in preparation which will present dependable working stresses for such joints and also the proper spacing and arrangement for bolts in wood. In the field of laminated construction tests were made of a number of different types of columns constructed by nailing together 1-inch boards. These columns ranged as high as 91 per cent of the strength of solid columns of equal size. The method offers possibilities for the use of low-grade material and mass production at the mill. The series of tests on metal joint fastenings secured from Europe through the National Committee on Wood Utilization was continued. The best of them increased the joint strength five to six times. Studies of built-up beams and laminated arches were begun.

Good bleached pulps suitable for book and bond papers were produced from Douglas fir by the modified sulphate process developed at the Laboratory. Continued experiments with this process on the southern pines gave very satisfactory results with slash pine. Longleaf pine and shortleaf have already been successfully pulped by the process to yield a strong white paper. The results of the various tests on the pulping possibilities of the southern pines carried on at the Laboratory for the last few years have recently attracted wide interest, especially the tests on young slash pine less than 30 years old in which the proportion of heartwood is small and the resin content small enough to allow pulping by the sulphite process. This young growth has also been ground by the mechanical process. The slash pine groundwood with the addition of slash pine sulphite to give strength has been made into newsprint on a laboratory scale, but demonstrations on a commercial scale are lacking.

Some 60 chemicals have been tested as fire retardents with the apparatus developed at the Laboratory. Twenty of these are sufficiently effective to warrant more careful investigation. Exhaustive laboratory and field tests on wood preservatives and methods of treatment form the basis of specifications recently adopted by the Federal Government. The "blinker" electrical machine developed at the Laboratory for the quick determination of moisture in wood is now being produced commercially by two concerns. A promising plastic moulding material was produced by treating hardwood with dilute acid in a recently designed apparatus and then with phenol and formaldehyde. Studies of extractives in redwood butt logs show the largest quantities at the outside and the smallest amount at the center. The more extractive the greater the durability. A study of the structure of wood has been carried considerably further than ever before. This information is needed for the development of sound processes for seasoning, preservative treatment, and the pulping of wood.

Publications were issued during the year as follows: Effectiveness of Moisture Excluding Coatings; Distribution and Mechanical Properties of Alaskan Woods; Explanation of American Lumber Standards to Lumber-Buying Public; Manufacture of Dimension Stock from Northern Hardwoods; Wood-Liquid Relations; Effect of Extractives on the Strength of Wood; Bracing of Farm Buildings; and Improvement in Production of Oleoresin through Lower Chipping.

Division of Range Research

Seeding tests in the foothills at the Great Basin Branch of the Intermountain Station have now been carried long enough to show the value of several species. Yellow sweetclovers when sown on plowed land produce good stands of vigorous plants, bloom early, mature seed up to 8,000 feet, and withstand grazing satisfactorily. Crested wheat-grass is vigorous,

rapid growing, drought resistant, starts growth early and does not cure until late fall, and when protected from grazing during the growing period produces a good, viable seed crop. Common brome starts growth early; furnishes considerable feed, is drought resistant, and spreads by rootstocks as well as by seed. The native many-flowered brome produces both good forage and seed crops on ungrazed range but apparently is not resistant to grazing in the seedling stage. All these species responded well to contour plowing and covering with a brush harrow and crested wheat-grass to broadcast sowing on raw soil with the seed trampled in by sheep, a much cheaper method of establishment. A comprehensive circular on artificial reseeding of mountain range lands was issued.

Studies on sagebrush-bunchgrass range in the foothill type of Utah, used chiefly for spring and fall grazing, show that heavy grazing and fire have seriously depleted range values. Areas long protected from grazing and fire support a stand of vegetation covering four-tenths of the total ground surface. Highly palatable bunchgrasses represent 68 per cent of the vegetation; sagebrush, worthless as forage, 11 per cent; and downy brome, an inferior annual grass, less than 1 per cent. The density of vegetation on severely grazed but unburned areas has not been materially affected but the grazing capacity has been reduced 40 per cent. Bunchgrasses have decreased 62 per cent, sagebrush has increased over 100 per cent, and downy brome has increased until it represents nearly one-sixth of the total vegetation. Areas that have been both severely grazed and burned show a 25 per cent reduction in density and a 56 per cent reduction in grazing capacity. Bunchgrasses have been reduced 84 per cent, low value perennial and annual weeds have been doubled, and downy brome represents more than one-fourth of the vegetation.

This year witnessed the publication of the late Douglas C. Ingram's report on the grazing of sheep on Douglas fir cut-over lands in the Pacific Northwest. Following logging and the burning of slash rapid growth of vigorous herbaceous plants presents a serious fire hazard which makes protection exceedingly difficult and expensive. Sheep will graze 90 per cent or more of the foliage production of many of these plants. In addition the sheep trample down much of the uneaten vegetation, break up a considerable part of the dry material on the ground, and work it partly into the soil where it cannot burn so readily and where it is more apt to absorb moisture. Thus, there is a reduction both in the percentages of inflammable material and in its inflammability. Grazing utilization should not, however, be so heavy as to result in permanent damage to the range or to forest tree reproduction. Such grazing is profitable to the sheep producer and furnishes an additional temporary revenue to the land owner during the period required for reforestation to crowd out the palatable forage.

Far greater damage to ponderosa pine reproduction in the Southwest was found to occur in experimental pastures, where cattle were watered every three days as compared to pastures where water was available for cattle at all times. Temporary watering places which have been developed in outlying feed areas on the more extensive experimental cattle range have greatly reduced the damage to reproduction close to permanent water without increasing appreciably damage on the outlying range. The determination of these relationships and the fact that increased damage occurs with shortage of feed and lack of water or succulent feed is making it possible to develop effective methods which should give satisfactory live-stock production and prevent undue injury by grazing to the timber reproduction.

That disastrous floods such as occurred in northern Utah, during 1923, 1930, and 1931 are not a natural geological occurrence is evidenced by the fact that the deposits from these recent floods are much larger in proportion than are the deposits which have accumulated at the mouths of streams since the days of ancient Lake Bonneville. As it is improbable that climatic conditions have changed so radically that rains such as occurred in 1923, 1930,

and 1931 could not have occurred in the thousands of years that have elapsed since Lake Bonneville, it seems plausible that the declining protective plant cover on critical areas of the mountain watersheds, mainly from overgrazing and burning, are responsible to a large degree for the rapid runoff and accumulation of heavily silt-laden water into destructive flood proportions.

A preliminary survey of the Rio Grande watershed in New Mexico discloses 35 per cent of the area eroding seriously, 40 per cent moderately, and only 25 per cent undisturbed or but slightly eroded. If allowed to continue unchecked a badlands formation will be developed over much of the eroding area. Erosion has been greatly accelerated during the occupancy of white man and, in certain instances, can be traced directly to overgrazing, destructive lumbering, or fires. The 1929 flood, originating on the Rio Puerco and Rio Salado, caused a loss of \$951,500, exclusive of damage to railroads. Silt displacement in the Elephant Butte reservoir for the 17-year period, 1915 to 1931, has amounted to 337,939 acre feet or almost 13 per cent of the storage capacity. The seriousness of the situation is apparent from the values dependent on maintenance of a satisfactory watershed cover. There is, for example, an agricultural investment of \$47,000,000 in the Elephant Butte project, an assessed valuation of \$40,000,000 for lands and improvements in the middle Rio Grande Valley, 700 miles of railroad, several thousand miles of State and Federal highways, and 14 million acres of range land. A similar survey on the Colorado River watershed shows 50 per cent of the area eroding seriously, 27 per cent moderately, and little or no erosion on 23 per cent.

FINANCE AND ACCOUNTS

By H. I. Loving

Cost Accounting:

The activity expenditure section of the new cost accounting system was put into effect on all Forests at the beginning of the fiscal year 1932. The entire system was revised and printed in pamphlet form. After further revision, as result of more extended use, it will be printed for inclusion in the manual.

Time Distribution, Regional Fiscal Offices:

The compilation of time distribution data in the Regional fiscal offices was completed and the resulting tabulations analyzed by a committee of three Regional Fiscal Agrnts. These data will provide a basis for comparison of fiscal offices and the establishment of time standards for various classes of work.

Legislation Relative Administrative Matters:

An act was passed January 31, 1931, providing for (1) hiring or rental of property from employees, with limitations as to amount each year. (2) payment for forage and housing of animals and storage of other equipment and (3) liberalization of the existing authority covering reimbursement for private property lost, damaged, or destroyed in connection with official work. This act permits the resumption of practices that had been prohibited by rulings of the Comptroller.

Progress was made on the following:

A bill providing penalties for assault or interfering with employees of the Department of Agriculture in the execution of their duties was introduced in the present session of Congress. In reporting to the Senate committee on the bill, the Secretary recommended that it be enacted.

Considerable effort was spent toward the procurement of legislation authorizing the continuance of Forest Service central purchase and supply depot units, resulting in the draft of a proposed measure which meets the approval of the Budget Bureau. Action on this bill is expected in the present session. If enacted, it would also furnish a legal basis for issuance of supplies from the Forest Service warehouses to other branches of the Government with reimbursement of the Forest Service appropriation.

A bill was authorized in the present session to authorize Forest officers to make arrests for violation of the act providing for the preservation of antiquities and to dispose of articles of antiquity taken into possession.

FORESTRY: ABSTRACT OR CONCRETE?

By R. D. Garver, Forest Products Laboratory

The little boy defined "abstract" as something that was there but you couldn't see it, whereas "concrete" was something that was there and you could see it. Public forestry is measured by more or less intangible terms of public service, whereas private forestry is measured by the balance sheet and immediately becomes concrete. Whether the balance is red or black depends to a large extent on utilization and merchandizing practices, and in certain cases on growing costs. But the article on "What is Forestry" in the February 15 issue of the Service Bulletin all but overlooked forest utilization and merchandising in the "basket" of definitions of forestry. This is not an uncommon approach when thinking of public forests but it is soon tripped up in connection with private forests which supply more than 90 per cent of our lumber consumption.

Forests serve a lot of purposes, but, roughly, they may be divided into two broad classes, (1) those we want to keep and not cut, and (2) those that we want - to cut and keep and cut again.

Forestry with the first class will remain abstract until some way of measuring its value for game, recreation, watershed protection, etc., is worked out. These forests will be easy and popular to talk about. Most any claim can be made for their value and profitability to society and its refutation will be unlikely, because no one can dispute the fact that they do contribute to the public welfare; the question is how much, if any, do they contribute above the cost of maintaining them?

With private forests of the second class, however, forestry discussion soon gets down to actual figures, "something that you can see," and the tide of argument converges into an inlet bounded by the phrase "Will it pay?" It is not so easy to talk about this class of forests without getting "picked up," and hence not so popular. Forest practice on "any old kind of land" will not pay. Business prudence will demand in the initial stages that the best forest land be used for this second class of forests. It will be a case of starting at the top and working down, not at the bottom and working up. Results will have to be displayed so that they can be seen, not just felt. Forestry as a concrete practical science tied in with balance sheets is less well understood because it is harder to explain and prove out, easier to check up on, and carries fewer emotional inducements.

To the "basket" of things that "forestry" includes, such as "protection," "silviculture," "reforestation," etc., may I add utilization and marketing? The Society of American Foresters in convention several years ago expressed the thought that silviculture in private forestry is largely dependent upon profitable utilization and the quality of the product. Sometimes in the heat of scientific endeavor, in the cool shade of a bushy tree, it is easy to forget that a forest crop must pay its way.

THE AMERICAN MANAGEMENT ASSOCIATION PERSONNEL CONFERENCE

By Peter Keplinger, Washington

A short time ago I attended a meeting of the Personnel section of the American Management Association. This meeting would have interested you because of the number of our own problems that were discussed. The subject given the most attention was the "College Graduate in Industry". Possibly the most interesting phase of the discussion was the emphasis placed on the man as against his scholastic attainments - pure scholarship ranks very low.

Mr. Dooley, Personnel Manager for Standard Oil of New York, gave a paper which was the result of a questionnaire study of the question "What does business seek in the college graduate?" He found that 200 companies annually canvass the schools for men and employ from 1 to 600 each. These firms in general are not interested in what course a man takes or what specific information he may have acquired - there are too many other things of more importance. There is more interest in how a man studies than in what he studies. Statistics indicate a preference for engineers but more because engineering courses include more exacting studies and fewer "memory exercises".

More specifically, the major things the employment officers were looking for in the men on their annual visits to schools were listed as follows:

1. Good health.
2. Participation in sport.
3. Good voice.
4. Personality - (Charm, color but not too much. Personality alone undesired)
5. Character (Confidence, ambition, but not self-centered)
6. Earnings - (Man who has worked way in part but not all. Too much poverty bad)

You will notice at once that scholarship is not included. There are too many other things of more importance - ability to get along with people, for example. Technical information alone will not get a man a job. Students are not wanted who are nothing but grinds.

Mr. Coler, Westinghouse, said that the reason for this is that industry is looking at the college man as a future prospect. If he is their kind of man he will acquire the technical information he needs as he goes along.

General Rees, American T and T, showed from statistical analysis many interesting facts and trends including the fact that 37.2 per cent of the positions paying four thousand or over are held by college men and the trend indicates that this will increase during the next ten years.

Mr. Chesterman, Vice-President and General Manager, Bell Telephone Company of Pennsylvania, said that it would be suicidal for any company to adopt the policy of appointing only college men to administrative positions. His own company, he said, definitely adopted the policy 32 years ago of inducting into the organization college trained men. Yet today three of the six men reporting directly to him are non-college men. Of the twenty-four reporting directly to these six, ten are college men and fourteen not. The non-college men are just as intelligent and just as capable in every way, the only difference is that it generally takes them longer to come through. No company can afford to shut itself off from this supply of capable men.

There are a number of other things I would like to discuss, particularly the recognition by industry that there is "no method of getting maximum production except that the worker is willing to give it to you", and the changes this recognition is causing in management. Possibly, I will sometime.

YE EDITOR DISCOVERS

Hearings are being held on H. R. 6665 and 6670 by the House Committee on Expenditures in the Executive Departments. These bills provide for the creation of an Administration of Public Works to handle practically all the Federal construction activities. The former leaves it to the President to organize the new agency; the latter stipulates the Bureaus and activities to be included and provides for the transfer thereto of "the Forest Service, except the agricultural functions of the Forest Service." What this means is not specified in the bill, but Chairman Cochran said he meant the "forest reserves" to be transferred.

Secretary of Agriculture Hyde appeared before the Committee and stated that the function of the Forest Service is in the agricultural field, mentioning as an example the study being given to the possibilities of converting sub-marginal farm lands to forestry use, and that the Forest Service belongs in the Agricultural Department and should be left there.

The Secretary further stated emphatically that the trail improvement and minor road work should remain under the Forest Service because it is inseparably tied up with fire protection. He explained that the forest highways are constructed by the Bureau of Public Roads.

Most of those who have appeared before the Committee, including the Secretary of the Interior, have stated that Administrative functions should not be transferred to the Public Works Administration -- merely the engineering and construction activities:

On March 10 the National Forest Reservation Commission, at a special meeting, gave consideration to the enlargement of the Oneida purchase unit and the establishment of three additional purchase units in the State of Wisconsin. These Units, embracing a gross area of three-quarters of a million acres, are the Chequamegon in Ashland and Sawyer Counties, the Oconto in Langlade and Oconto Counties, and the Mondeaux in Taylor County.

It is explained to the Commission that the people of Wisconsin understood that no money would be available for purchases during the coming fiscal year, or perhaps for some-time thereafter. Nevertheless, it was pointed out, they were desirous of securing the Commission's decision with reference to the proposed areas, so that the plans of the State, the Counties, and the private owners of forest land could be properly correlated with the probable plan of the Federal Government. After discussing the situation in detail, the Commission gave its approval to the establishment of the areas described. It was understood, however, that no purchases would be made therein until such time as Congress would again make adequate appropriations for carrying out the general acquisition program.

War has been declared in one Region against needless and escapable paper work. The Regional Forester went through the Operation, Engineering, and Forest Management files on one National Forest and reached the conclusion that 82 per cent of the papers examined were uncalled for if well recognized possibilities of short cuts in paper work had been applied. This same Regional Forester had all the mail go through his hands from the Regional office units as an experiment. During the first morning he got 42 letters and formal papers which in his judgement should never have been typed. He wonders what our possible savings in current paper work might be if we were bold enough to take a few risks of occasional inconvenience on account of the lack of a written record.

The Bandelier National Monument on the Santa Fe National Forest was transferred by Presidential Proclamation dated February 25 from the Department of Agriculture, Forest Service, to the Department of the Interior, Park Service.

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Numerous cancellations and consolidations of administrative units were made last summer. This merger movement is evidently continuing. Recent reports are that 8 ranger districts on bad fire Forests in one Region are being consolidated into 4.

PACK DEMONSTRATION FOREST IN MINIATURE

By Leo A. Isaac Pacific Northwest For. Exp. Sta.

The Forestry College of the University of Washington has constructed from natural materials a miniature of the Pack Demonstration Forest at the headquarters of the forest near La Grande, Washington. The purpose of the miniature is to aid in giving visitors a short lesson in forest management and explaining to them the work that is being done.

It is built on a scale of 1 foot equals 100 feet and the streams, bridges, canyons, cliffs, roads, trails, railroads, and buildings are all constructed to the scale. An area of several thousand acres is represented.

From the miniature gateway, the visitor may be shown the nursery, administration buildings, sawmill, and the Nisqually River with its precipitous canyon walls and water falls, then in a few magic steps he is at the lookout house on the highest point in the forest and sees the cut-over areas, the progressive logging, the different age classes of the forest, and the old burns.

The one great difficulty will be to keep the trees "miniature". They just can't stop growing, and the big job will be to correlate the rate of growth with the cutting cycle.

CALIFORNIA NATIONAL FORESTS PAY DIVIDENDS

The National Forests of California have returned to the State and Counties a total of \$4,311,456, to and including the fiscal year 1931, in lieu of taxes on Government owned lands within the National Forests. This represents 25 per cent of the gross revenues derived by the Forest Service from the sale and use of resources within the National Forests. An additional \$1,629,161, or ten per cent of the revenues, has been spent in cooperation with the State and Counties for construction and improvement of trails and secondary roads within the Forests, not including cooperative assistance on forest highways which are part of the State highway system. This makes a total sum of \$5,940,617 returned to California by the Forest Service. This is the largest return received by any State, the second largest being Oregon which has received a total of \$3,784,861. The average annual return to California from the National Forests, including all road work, recreation facilities and indirect benefits, exceeds by \$346,000 the annual taxable value of Government lands administered by the Forest Service. -

R. 5 "Chips From the Forest".



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY **** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER.

Robert Roosevelt

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FORESTRY, WHAT IS IT?

By Peter Keplinger, Washington

Every so often the Service Bulletin runs a series of articles on some good reliable subject such as uniforms or forestry. In these articles we go over and over again the same old arguments. The February 15 Bulletin led off with an article on "What is Forestry." Garver followed (March 21 issue) with one on "Forestry, Abstract or Concrete." Garver's article tempted me.

In order to keep within the rule which prohibits the introduction of anything new, I looked up some of the old stuff learned in school. I find that Fernow said that forestry is "a policy, a science, an art, a business, depending on the point of view." That was the German conception. To this in America we have added "a profession" and "a religion." And while I can find no statistics on the subject, it seems to me that there are more foresters "preaching the gospel" than there are practicing the profession.

To come back to Fernow's definitions, the one that interests me most is forestry as a business. Drawing further on my school-book definitions, it seems that business has something to do with the production and distribution of values - benefits. In school we were taught that wood was the principal value produced in forests, but that there were numerous minor values. However, that was a long time ago. Not so long ago somebody quoted a Cornell economist as placing wood sixth in the list of forest values. New York places the value of the wood so low that it makes no effort to utilize it, while a Regional Forester recently ranked wood production as third in the scale of value.

Now Garver bunches all these values other than wood together and calls them "abstract." The wood is "concrete." I seem able to follow him that far fairly well, but when he ascribes the abstract values to public forests and the concrete to private, I cannot understand. Why is it that a private forest does not prevent erosion or floods, has no value as scenery, and produces no shade? It just doesn't sound reasonable.

Possibly this assumption that private forests produce only one value is the reason why we do not have in the United States the type of forestry that Garver calls "concrete" (except in a few isolated cases) and further that there is no prospect that we ever will have until we change our approach. Such forestry does not pay and what prospect is there of making it pay while utilizing only one product and that sixth in importance and value.

However, times do change. Forestry as a religion is on the wane. As it wanes, in-

terest will center on something else, possibly forestry as a business. And when it does there will be found a way to capitalize the first five values. Until then how can we expect forestry to be anything except just something to talk about.

RECREATIONAL USE OF STATE FORESTS

The following excerpts were taken from an article by William G. Howard, Superintendent of Lands and Forests, New York, in the "Forest Worker" for January 1932:

"It has come to be pretty well recognized that State forests, particularly in the thickly settled parts of the country, are fully as valuable for the recreational opportunities they provide as for the saw timber or pulpwood they may produce. I claim no great credit as a forester for making this announcement. On the other hand I make it with humility, knowing that foresters have been among the last of our citizens to appreciate this fact.

"Badly as we are in need of timber and other forest products in this day and age, much as we of the Eastern States should like to produce our own timber and thus save the millions of dollars we pay each year for freight on lumber imported from the West and South, anxious as we are to see our own wood-using industries assured of an adequate supply of raw material - in spite of all these considerations, which have been important factors in bringing about the establishment of State forests, we must realize that the relatively small area of such forests may be vastly more important in the recreational opportunities it affords than in its effect on timber-supply problems. ***"

"When the money from the first of these (New York State) bond issues became available in 1917, it was obviously necessary to formulate a policy for land acquisition. The policy adopted at that time has proved satisfactory and has been followed ever since with remarkably few changes. The more important of the purposes that govern the selection of lands for acquisition for the forest preserve are:

"1. To extend State lands suitable for public recreational use and to protect natural features having aesthetic value.

"2. To assure the maintenance of protection forests on the watersheds of important streams.

"3. To consolidate State holdings and thus facilitate administration.

"4. To perfect the State's title to lands and reduce the cost of litigation.

"Lands suitable for recreational use are of many classes, ranging from well-timbered areas in the high mountains to less well-timbered but more accessible land adjacent to the public highways where more public camp sites are needed. The lands acquired under the bond issue have been particularly well selected as regards the extending of the areas available for recreational use, that is for hiking, hunting, fishing, camping, and the like. The high mountains purchased in some cases primarily for watershed protection are the areas most attractive to the hiker and mountain climber. Areas of less rugged topography with attractive water courses appeal to those who desire to hunt and fish, or to have a place to camp with their families over the week-end. Lands acquired under the bond issue include tracts easily accessible from each large town or city adjacent to the Adirondacks. Acquisition has been divided proportionately between the Adirondack and Catskill Forest Preserves and has been extended in all directions with the result that additional State lands have been made available to communities tributary to all parts of the forest preserve. ***"

"While every effort has been made to provide safe, sanitary camping places for the public, no luxuries have been installed nor has anything been done to interfere with the wilderness character of the forest preserve, which is one of its chief attractions.

"In spite of the rapidity with which these developments have proceeded, they have hardly kept pace with the demand. At 21 of our larger public camp sites 129,000 persons were

registered in 1929, 267,000 in 1930, and 437,000 in 1931. These figures, of course, do not include campers at smaller public camp sites, where no rangers were in attendance, and include only a small proportion of the many travelers who enjoyed the beauties of the forest preserve from the highways. Furthermore, it does not include the host of sportsmen who derived enjoyment from fishing and hunting on forest-preserve land. It is certain that practically all the holders of deer-hunting licenses, 75,000 in 1930, hunt in the Adirondacks and Catskills, and most of them at one time or another on the State forest preserve.****

"The present intensive use of our forest preserve by the public demonstrates the value of these forests to the citizens of our State and others for recreational purposes. If the increased health and happiness resulting from recreational facilities provided by a complete and adequate system of State forests could be measured it would prove, I am sure, not only that State forests are a good investment for any State but that no State can afford to be without such public forests."

(The above excerpts might be considered in connection with Garver's article in the March 21 issue of the Bulletin and Keplinger's in this. Will somebody please tell us, What is forestry?" Ed)

THE ALASKAN BROWN BEAR

By C. E. Rachford, Washington

I have never made his personal acquaintance. If I ever have that pleasure I'm going to accord him the same natural instinct of self-preservation that is inherent in man. That means that when traveling in his country I shall be constantly on the alert and avoid disturbing him unexpectedly if I can. If perchance we make a surprise attack and it seems evident one of us must lose, I prefer that it be the bear. Of course I shall abide by the rules of good sportsmanship recently laid down by some noted big game hunters: "Never shoot until the bear starts his spring on to you;" that is, if my nerves can possibly stand the suspense, anxiety, fear, or whatever it is that impels a man to do what is said to be the foolish thing of protecting himself when he appears to be in imminent danger. One noted authority says there is no real danger. If you happen to be directly in the bear's path, just stand your ground. All the bear will do is knock you down, take a few nips out of you, and go on. In such cases this authority prescribes lying perfectly still (after you are knocked down) and "playing dead." That might be a hard prescription to follow, especially for one of nervous temperament. Human nature being what it is, however, I presume not all persons would react in exactly the same way in the face of danger, and I'm very much afraid this fact has not been intelligently and exhaustively considered by those who hunt the bear with a telescope lens, supported by an able, experienced hunter with a real bear gun cocked and primed to reach a vital spot in the event the bear should make an alarming move. Being a lover of all forms of wild life, however (and a rotten shot), I'm inclined to believe Mr. Bear will have every opportunity to get away from me if he wants to. Any time he indicates the opposite desire I trust my gun and nerves will be sufficiently dependable to stop him in mid-air — preferably some distance from where I stand.

You doubtless are thinking by this time that something must have prompted the foregoing comments. Right. I've been enmeshed for the last several weeks in an accumulation of arguments for brown bear protection in southeastern Alaska on Admiralty Island, and trying to get at the facts. The agitation was started by Stewart Edward White and given impetus by the author of "The Wild Grizzlies of Alaska," Mr. John Holzworth. Both of these gentlemen allege to have spent much time in investigation; both describe the brown bear as the most majestic representative of the animal kingdom; both picture the need for protection because of present danger of extermination; both deplore any attempt to develop timber resources in

the bear's native habitat, and would sacrifice industrial development of southeastern Alaska in the interest of bear protection. Both of these learned men speak convincingly. It is no wonder that their views -- disseminated by articles and radio -- have aroused many conservationists and their associations. As is usually the case with propagandists, they have resorted to exaggeration for the sake of emphasis.

As nearly as I can arrive at the truth of the matter the real facts are:

1. The Alaska Game Commission, Forest Service, Biological Survey, and local authorities are intensely interested in bear protection. Adequate sanctuaries have been or will be established.

2. The number of bear killed annually on Admiralty Island is far below the natural increase.

3. Timber operations may be conducted on the island without materially interfering with the bear.

4. While the bear is an attractive animal and a valuable asset to the country, such industrial development as will come about through the harvesting of the timber is essential to the progress of the Territory.

After all, the agitation has emphasized the need for a well-developed game management plan, properly coordinated with timber management. Such a plan must be based on reliable data on numbers of bear, capacity of the area, normal increase, permissible kill, etc. Its success will depend upon the men available for its application, who undoubtedly will be supplied by the cooperating agencies whose common understanding and agreement leave nothing to be desired.

MRS. ROOSEVELT APPROVES NAMING FOREST FOR LATE PRESIDENT

The Secretary's Letter

Mrs. Edith K. Roosevelt,
Oyster Bay,
Long Island, N. Y.

Dear Mrs. Roosevelt:

The existing National Forest system and Federal policy of Forest conservation is generally regarded as having received its greatest stimulus not only during the administration of President Roosevelt but largely through his personal interest and constructive action. Regret frequently is expressed, not only by members of this Department but by others interested in Forest conservation, that President Roosevelt's outstanding contributions to forestry are not commemorated by the designation of one of the one hundred and fifty-two National Forests as the Roosevelt National Forest. Two such proposals, one relating to the Colorado National Forest in the State of that name, and the other to the Crater National Forest in the State of Oregon, are now before the Forester for consideration.

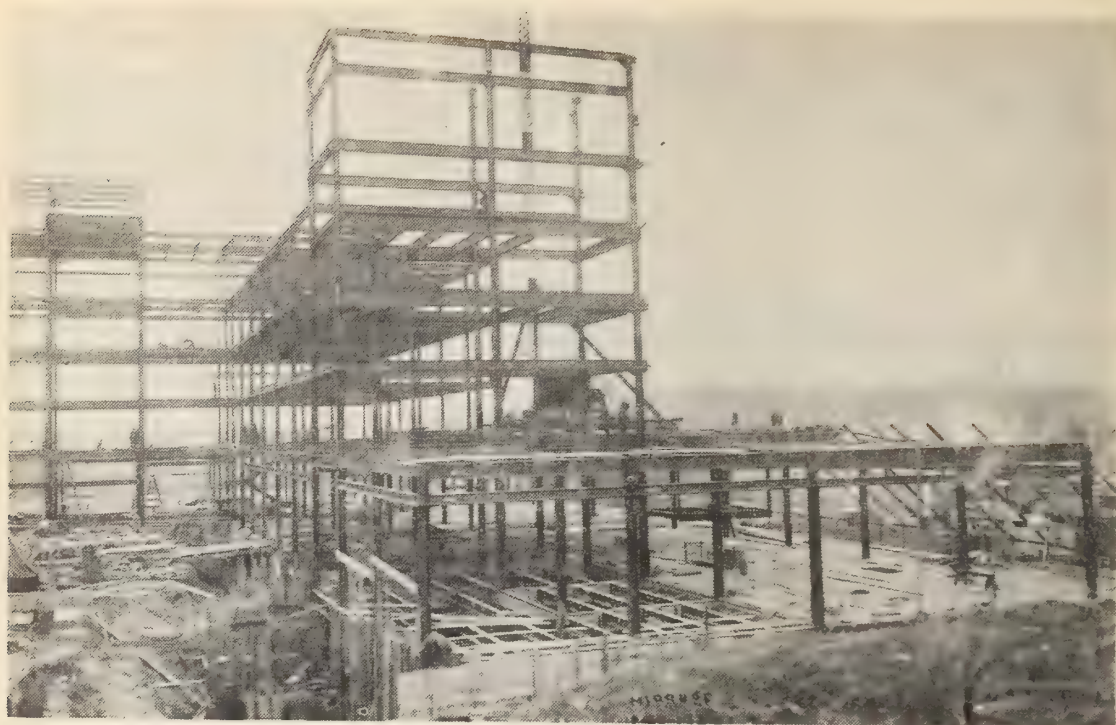
Your reluctance to sanction the use of the President's name for the designation of any natural or administrative feature is fully understood and shared. In view of the frequency with which suggestions are made that a National Forest be named in his honor, however, an expression of your views on the subject would be very helpful, and while I hesitate to intrude upon your time the possibility that you might be willing briefly to indicate your views is my warrant for laying the matter before you.

In the event your permission was received to designate a National Forest as the Roosevelt National Forest the name would be applied to the Colorado National Forest which is situated in extreme northern Colorado principally to the east and north of the Rocky Mountain National Park. It comprises one of the most interesting sections of the Rocky Mountain Range, embraces an area of 1,101,958 acres, contains some of the greatest scenic features of the State, is of outstanding importance as a source of water supply for a large acreage

THE HOUSE THAT "JACK" BUILT

New Forest Products Laboratory Building is Coming Along





of irrigated land, has large resources of timber and forage and, in general, presents so many phases of natural resource conservation that it would be truly representative of the policies to which President Roosevelt gave his strong personal support. It is a section in which President Roosevelt was very well known and in which many warm personal friends still reside. The suggestion that his name be applied to the unit consequently has met with widespread approbation.

Precedents for the use of the name of a former president of the United States in the designation of a National Forest are afforded by the Washington, Jefferson, Lincoln, and Cleveland National Forests. President Roosevelt's relation was much more direct and intimate. In number and area the National Forests which he created exceed those created by all other presidents combined.

If such a use of President Roosevelt's name fails to meet your approval, that fact will be definitely recorded and no further suggestions of that kind will be entertained by this Department. If, on the other hand, the proposal is not objectionable to you, I should be happy to request the President to re-designate the Colorado National Forest as the Roosevelt National Forest

Very sincerely yours,

/S/ Arthur M. Hyde,

Secretary

Mrs. Roosevelt's Reply

My dear Mr. Secretary:

It has been a pleasure to receive your very kind letter and it will really be a great satisfaction for me if it is decided to give my husband's name to the Colorado National Forest. He had the whole policy of forest conservation so much at heart that I cannot but be deeply gratified by your letter.

Sincerely yours,

/S/ Edith K. Roosevelt

(The Forester has approved the designation of the Colorado National Forest as the Roosevelt, and steps are being taken to secure issuance of the necessary proclamation or executive order. - Ed.)

DOES PUBLIC RELATIONS PAY?

By Margaret W. Chipley, R-2

On page 6 of the Service Bulletin of November 30, 1931, is an extract copied from a recent edition of the Milwaukee Journal in which this statement is made: "The great bulk of school children are given no idea of what conservation is all about. - - - The schools seem to resist such instruction - - - talk about their crowded curricula, and offer other reasons for lack of interest."

This might have been said of the Denver schools 12 years ago, but not now. Almost weekly we have evidence of the awakened interest of teachers and pupils in the study of conservation; they correlate forestry with social science, geography, nature study, and English. It is not unusual to receive a letter from some pupil in one of the schools, asking for literature, or a visit from a teacher in search of lantern slides and pictures to illustrate her subject.

You would be convinced of the sincerity of these efforts if you could have been with me a few weeks ago when I went to a little play put on by the children of the 5th grade of one of our schools. They had been studying lumbering and had used our slides and literature. The first part of the play represented the children playing school; with dear old grandmother taking the part of teacher. Her questions were vital ones, such as "When trees are cut

down from a watershed what happens?" "What do forests mean to us?" "Name several National Forests in Colorado." "What is the work of a Forest Ranger?" "Why should we buy a tagged Christmas tree?" As she asked these questions it was very plain that "grandmother," as she peered sternly over her glasses at her pupils, expected a prompt and correct answer.

The next part of the play was put on by the boys of the same grade. They were hiking through the Pike National Forest; stopping to camp for the night, they built their fire in a safe place and discussed the various subjects of forestry, in an interesting way. They were visited by a Forest Ranger who welcomed them, cautioned them about their fire, and requested them to leave a clean camp.

After the play, I visited the schoolroom and was shown the maps and charts the children had made in connection with the study of forestry.

Again, the next week, I was invited to a forestry program put on by the 5th grade of another school. Throughout the interesting program there was every evidence of the splendid foundation that had been given those children in the study of forestry in general, and especially applied to the National Forests of Colorado. A large map had been prepared by the pupils, showing in different colors, the boundaries of each National Forest and each pupil was given some part in explaining that map to the audience; the name of the Forest, the principal town, the mountain peaks, the characteristic tree species, etc. Another diagram showed the different zones from the plains to timberline in which different tree species grow. A little girl sang "Trees" without accompaniment, as sweetly to me as Louise Homer sings it over the radio, and the program was closed with the reading in concert, of the following pledge:

OUR PLEDGE.

"Trees are the helpful friends of man. Therefore; I will do my best to keep them from harm; I will do no act that might endanger their safety; I will learn and practice the rules for fire prevention, and forest conservation; I will work, and rest, and play in the forest at the right time, and in the right way, so that there will be forests for us and for future generations to enjoy; I will not spoil their dwelling places by leaving rubbish in them, nor by injuring them so that they cannot provide us with pure air; I will protect them so that they may live a useful life and be a glory to our mountains and a benefit to our country."

This awakened interest has not come about in a day or a month, but it has taken years of tactful effort in presenting the work of the Forest Service in such a way that children could grasp the idea of conservation and teachers could be made to see that forestry could be correlated with other work, enriching the course instead of "crowding the curricula."

In the first years of this publicity work there was a great demand for lectures, but now the teachers say, with pride, "We are now doing this work ourselves and letting the children take the initiative," and this is just what we have been trying to bring about. Once in a while the morning mail brings us a letter from some little boy or girl who writes, "We have been studying lumbering and won't you please come out and show us your pictures and tell us a story?" Of course, the invitation is accepted and we go to be shown the work they have been doing; a lumber camp, a ranger station, the farmhouse with its protective wind-break, all worked out on their sand tables, and when our story is told there is a greater appreciation from both teachers and pupils because of the knowledge and interest they have gained by their study of the subject.

Does Public Relations Pay? In these groups of children there are probably future law makers of our country. Without any doubt there are many who will have an influence over the ballot box, and in the course of a few years we may have Congressmen and Congresswomen - Why not? - urging larger appropriations for this all important work. At any rate, our forests are safe in the hands of the children as evidenced by the pledge quoted above.

SPRING FIRES ON THE JACK PINE PLAINS

Spring fires on the jack pine plains of the Lake States are common and burn over many thousands of acres each year. In many quarters such fires, occurring as they do before growth starts, are believed to do little damage. The following figures, secured four months after such a fire, indicate that this is not the case.

Forest Type: Open, uneven aged jack pine; 6" to 38' in height; 0 to 10" in diameter (4-1/2' above the ground); 1 to 40 years of age; merchantable stand about 1-1/4 cords per acre.

Date of Fire: April 15, 1931.

Time of Fire: 2 to 3 P. M.

Conditions prevailing: Temperature - 69°; depression of wet bulb - 18°; relative humidity - 24%; average moisture content of litter - 9.4%; wind direction - southeast; wind velocity 6' above the ground - 2.9 miles per hour, 30' above the ground - 8 miles per hour; weather - clear; fire hazard - high; trees - dormant.

Summary of Damage

	No Damage	Slightly Scorched	Moderately Scorched	Fully Scorched	Burned (Dead)
	%	%	%	%	%
0 to 2' high	1	0	0	0	99
2 to 7' high	1	1	1	1	96
7' high to 4" diameter	0	27	31	18	24
4" in diameter and up	3	78	15	4	0
Per Cent of Total Number	1	11	5	3	80

In other words, early spring fires on the jack pine plains, such as the one recorded, which was typical, kill about 80 per cent, and more or less seriously damage about 90 per cent of the stand. The greatest damage done is to small trees or reproduction. Spring fires may cause little or no damage to merchantable trees but they are responsible for lack of reproduction in older stands, thus jeopardizing the future of the forest.

- Technical Note, Lake States For. Exp. Sta.

HOW OLD ARE THE LIVE OAKS

(From an article by Edwin Lewis Stephens in "American Forests.")

I am perplexed with conflicting evidence in regard to the probable age of the largest live oaks we have in Louisiana.

What shall we say of live oaks that measure eighteen feet, twenty-two feet, twenty-seven feet, and thirty-three feet in circumference? I have recently measured many large specimens, including the following: The two great live oaks in front of Colonel Boyd's residence on the old university campus in Baton Rouge, one of which measures eighteen feet, the other fourteen feet, in circumference; the great central live oak in the American graveyard in Natchitoches, seventeen feet, two inches; the large oak at the Protestant Cemetery in Lafayette, seventeen feet, six inches; the two trees on Twin Oaks Farm five miles north of Carencro, sixteen feet, one inch, and eighteen feet, three inches; the big oak in Broussard, eighteen feet; the G. A. Martin oak in Lafayette, eighteen feet, three inches; the monarch of Paradise Grove of Breaux Bridge, nineteen feet, two inches; the one in Father Rochard's yard at Breaux Bridge, nineteen feet, eleven inches; the great live oak at the Lafayette Cathedral, nineteen feet, and the one in the Cathedral cemetery, twenty feet, six inches.

Now it is claimed for many of these oaks that their age is anywhere from 200 to 1,200 years! Mr. Edward A. McIlhenny informs me that the big live oak on Avery Island was estimated to be between 1,100 and 1,200 years old by the great British botanist, the late Henry John Elwes, F.R.S. On the occasion some ten years ago when Elwes visited Avery Island, Mr. McIlhenny cut down for him a much smaller tree and made a cross section which Elwes examined with a magnifying glass and found to have nearly a thousand annual rings. Mr. McIlhenny states that he himself recently counted the rings from the cross-section of a much smaller tree on the Island, showing 429 years of growth.

NEW YORK REFORESTATION ACT

The enlarged reforestation program approved by the voters of New York State was formally started when Governor Roosevelt signed the Hewitt amendment on February 2. The Hewitt amendment provides the means for the extension of State reforestation areas. Under the plan approved \$19,000,000 will be expended over a period of 11 years in this work. The sum of \$1,000,000 is made available for the present fiscal year, and future amounts will be available rising on a gradual scale.

With the funds available, the New York State Conservation Department will be in a position to accelerate its program of acquisition of land for State Forest reforestation purposes and managing productive forests. Senator Hewitt in an interview immediately after the Governor signed the bill, made the following statement regarding the program:

The functions of the forests to be established are:

- (1) Protection of our watersheds.
- (2) Creation of public hunting and fishing grounds.
- (3) Providing areas of forest and woodland adjacent to communities in all parts of the State where camping and picnicking may be enjoyed on publicly owned land.
- (4) The production of timber which will help to maintain the existing wood-using industries and bring back some of those industries which have left the State for lack of raw materials.

Last, but by no means least, by reclothing with trees our abandoned farm lands, thus improving vastly the appearance of our State.

- Pa. Dept. of Forests and Waters Service Letter

WILLIAM WILLARD ASHE

We regret to announce the death on March 18 of Forest Inspector William Willard Ashe of Region 7.

Graduated from the University of North Carolina in 1891 and Cornell in 1892, he had been engaged in forestry practically all his life. He planted one of the first commercial stands of longleaf pine in North Carolina, introduced modern cupping of pine trees for turpentine and was most active in discovering and identifying native trees. As a scientist he ranked as a leading dendrologist and authority on forest trees found east of the Rocky Mountains. His career as an author of scientific treatises began about 1895, when he was connected with the Department of State Forestry in North Carolina, and his publications included many bulletins and reports on forestry, dendrology, and water conservation. He began his first work in Federal forestry in 1899 and had been a member of the Forest Service continually since 1905.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER

Robert R. Ross

Vol. XVI No. 14

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MEASURING RECREATIONAL UTILITY

By R. C. Hall, Forest Taxation Inquiry

The position taken by Kylie in an article entitled "Forest Values" in the Bulletin of February 15 is that it would be well to emphasize the utility of forests for recreation, water, soil building, and the like, by placing a monetary value on these resources just as we do on the timber. With this position there can be no quarrel. The method suggested for appraising recreational utility is, however, open to question.

Why is the amount spent by recreation seekers in transportation, subsistence, and incidentals in reaching or living on the National Forests any measure of the forest recreational value in the economic sense? If I go to New York to attend a show at an expense of \$4 for a theatre ticket and \$10 for transportation, dinner, and incidentals, is the recreational value of enjoying the show from a \$4 seat either \$10 or \$14? Would it have had a different value had I hitch-hiked and eaten my dinner at Mr. Zero's? If I go to a National Forest, to which my Government admits me free of charge, is the value of admission to its recreational facilities the amount I pay for transportation and subsistence? If so, that value depends not on the recreational utility of the Forest, but on where I start from and how expensively I travel. The fact is that the money spent on the way is given in exchange for gas, oil, lodgings, hot dogs, and chicken dinners. It measures the values of these commodities, not the value of forest recreation.

The total amount of money spent on vacations in National Forests may be used as a rough indication of the importance in the public mind of their recreational advantages, but if compared with the total amounts spent in the same year for cigarettes and lip sticks perhaps the result would not be particularly impressive. Figures of this sort may be used most effectively to show benefits from forest recreation to local business and agriculture as in the article in the same number of the Bulletin on game as a revenue producing resource, but here again let us not wax unduly enthusiastic but consider also the national viewpoint. It is often overlooked that purchasing power used by tourists in a forest locality is subtracted from the available purchasing power in some other part of the State or in some other State, and that no increase in total purchasing power arises directly out of the use of recreational facilities. I cannot buy a new suit of clothes in New Haven with the money I have spent on a vacation in the Whitsit National Forest. The tourist home's gain is the home tailor's loss.

Coming back to the question of the correct method of determining the recreational value, in the economic sense, of a National Forest, the following formula is proposed for further discussion:

$$x = \frac{a n - c}{.0p}$$

in which "x" is the desired recreational value of the Forest, "a" the admission charge that would give a maximum value to "a n," "n" the number of recreational visits per year at this admission charge, "c" the annual cost of administration and protection allocable to recreation, and ".0p" the prevailing annual rate of interest on real estate investments. The general application of admission charges on all National Forests must be assumed in estimating "a" and "n" for any given Forest. If this formula is accepted as sound in theory, let the hardy guessers on each Forest come forward with figures to substitute for the symbols in the equation!

Finally, let it be noted that we have not told the whole story of recreation on the National Forests by giving an appraisal of their value for that purpose. Value is not determined by utility alone, but by utility and scarcity. As the facilities for outdoor recreation are abundant, the value at which they may properly be appraised is correspondingly low, and not at all an adequate measure of the benefits which they confer. One cogent reason for preserving the National Forests is to keep the kind of recreation they afford low in value and thus available to as many as possible.

FOREST VALUES

By H. R. Kylie, Washington

After reading Hall's article "Measuring Recreational Utility" and finding in it very little with which I could agree, I want to try and answer some of his criticisms, because I am afraid that in brandishing his economic cudgels as he does he will confuse us and frighten us away from the problem by leading us to think it is insolvable, instead of urging us to attack it. This will leave us, as I see it, just where we have been for too many years.

Hall will not concede that the expenses incurred in going to the Whatsit National Forest can be used as a measure of the recreational value to be found there, because to do so would be to make this value a function of distance and expense of travel instead of, I take it, some quite definite amount inherent in the Forest itself and independent of external conditions, and, independent too, therefore, of the desires and urges of the tourist whose primitive urge will only be satisfied, apparently, by this particular Forest since he comes to it. So Hall proposes the fiction of an admission charge which solves our problem and allows us to keep our Economic "face."

It may be that I am economically benighted for I find no difficulty in accepting this expense item as a measure of value. Possibly it may not be the same value Hall is after. Our timber values are functions of distance and expense; at least I got that impression from listening to timber sale appraisers in former years.

Hall also cautions us to consider the national viewpoint and points out that purchasing power used by tourists in a Forest locality is subtracted from purchasing power, say, at home, and that no increase of purchasing power arises directly out of the use of recreational facilities. I wonder if that is true in the economic sense. I understand that the total purchasing power of this country has increased enormously in the last hundred years and that it is steadily increasing except for an occasional depression. I understand, too, that the increase is mostly due to those of our people who are willing to save and wait, accumulate a surplus, and invest it to create new wealth.

If we all spent everything we earned the purchasing power used in a Forest locality would be subtracted from that of some other locality, but our President assures us that there is more than a billion dollars in hoarding and still our banks are plethoric with deposits. It is quite possible, therefore, that some tourists might spend money on the Whatsit National Forest and still have money enough left to buy that new suit in New Haven.

But what of it? Why must we take a position in the matter of national purchasing power? Does not our tourist make his own decision as to where he will spend his money? And will he welcome our advice if we tell him to consider carefully the national viewpoint before he does spend it? And if after listening to us he chooses to spend it on the Whatsit National Forest are we not, as administrators of that Forest, compelled to consider what we shall do about meeting the conditions he makes for us?

Furthermore, Hall says, we have not told the whole story of recreation by giving an appraisal of value for that purpose, and that one cogent reason for preserving the National Forests is to keep recreation low in value and available to as many as possible. Well! are we not doing that when we make no charge for admission? We cannot keep low the cost to the tourist of getting to the Forests. What more can we do after we have adjusted our policies and expenditures to the value which the tourist places on our National Forests?

But Hall admits that "the total of money spent on vacations in National Forests may be used as a rough indication of the importance in the public mind of their recreational advantages." Now whose mind shall we use if not the public mind? And why importance? Why not value, since the public tells us in dollars, if we will do a little statistical research, what he thinks about it?

And then we are given a "correct" method of determining recreational value. It is based on a fiction - an admission charge. Unless we can assume such a charge or actually make it we cannot, I assume, establish any value in the economic sense, which leaves the problem in statu quo ante, that is unsolved, in fact almost unattacked except for the work of Mr. Sherman and Dr. Waugh.

I do not believe that common sense requires that for our particular purpose of arriving at a measure of value we separate this total into so much for eats, incidentals, and transportation. If we do, why should we not separate for valuation purposes the parts of our Ford cars, which take us to recreation spots, and each part of which has an individual value, and insist that the assembled car has no value. We are usually (unless we sell Ford cars) not interested in partial values but in the total value. Why not look for total values here? Public Values. Community Values.

In the case of the forest, we have a community property, and such tourist expenditures as are made in order to enjoy it go to various communities, in various ways. Since Mr. Tourist elects to spend money to get to our Forest and spend some time on it, he compels us to consider how much we in turn shall ask Congress for, and shall spend to protect it, provide conveniences for him, build roads for him, protect game for him, and provide fishing for him, that is, of course, assuming that our job is something more than simply raising a crop of wood. I wonder what Congress would say if we told it that our estimates of needed funds were based on what we would charge for admission, if we did charge for it. I wonder, too, if amounts spent by tourists is not the pragmatic approach to a solution of the problem. To have value, a thing must have utility and scarcity, as Hall points out. Also demand, and purchasing power are further links in the economic chain. The Whatsit National Forest has utility, of course, and it is "scarce" to me if I live in New Haven. I demand it when I go to it, and must back up my demand with purchasing power, in order to establish value. Thirty-two million people did something like this last year. Hall makes me say that "it would be well" to emphasize these various values. I'd make it much stronger than that. I'd say we'd better do it, ourselves, before it is done for us by Civic clubs, Women's, and other local organizations, or before they ask us why we haven't done it.

I'd like to present a little allegory. A certain taxation economist, weary of studying the problem of how to devise a tax that would not be felt by the most sensitive lumberman, decided to take a vacation, and invited a certain Editor of the Service Bulletin to go with him. The Editor accepted enthusiastically. The Economist remembered a spot in the Rockies and a stream that tumbled over rocks into a deep pool where numbers of big Rainbow trout lurked. From the pool this stream ran in a great sweep around a beautiful grove of western white pine, an ideal place to pitch a tent. He paid one hundred dollars for a railroad ticket, twenty for a Pullman berth, and started for this ideal spot. There was scenery of a sort to be viewed from the car windows, but also, there were smoky cities to go through, long stretches of prairie, and the rattle of Pullman car trucks to listen to. Hardly, a hundred dollars worth of entertainment. In fact, he carried a copy of "The Compleat Angler," by one Isaak Walton, and found that it chimed with his vacation mood, and excluded much distracting noise and scenery. It also showed where his interest lay.

After paying a total of fifteen dollars for various meals on the diner, he arrived at the nearest town. Here, at the Great Western Mercantile Company, he selected with much pleasure, and purchased for another twenty dollars, an eight-ounce fly-rod, nice and whippy, also a double action reel, a tapered silk line, and a box of flies. Only a fisherman can appreciate the delight he took in making these selections. It required hours. His friend, the Editor, did all these things, too, with quite as much delight.

Next, he hired a man for ten dollars to take him and his friend to the perfect spot and there they pitched their little white tent in the sweet-smelling grove of pines beside the lovely stream. For two weeks they fished, and explored, and loafed. In the early morning they would whip the pool, get their "strikes," play and land their fish. In the middle of the day, the taxation economist would go exploring, while his friend, the Editor, would lie under a tree, smoke his pipe, and watch lazy clouds roll over the pine trees. In the late afternoon they'd fish some more. Still later they'd cook their supper over a log fire, wash the dishes, almost, and then sit around the fire watching the flames leap and the sparks jump. Two delightful weeks passed by and the vacation ended. On the last night, around the campfire, the taxation economist said to his friend, the Editor of the Service Bulletin, "This trip has cost me \$165, neglecting for the moment the cost of getting back. I can place values on the transportation, the eats, sleeps, fly-rod and reel. On everything, in fact, except this Whatsit National Forest. That will have no value until they charge admission."

"You won't admit," queried the Editor, first taking his pipe from his mouth, "that this \$165 is your own measure of value for your vacation in the forest?"

"Certainly not," replied the taxation economist. "It's an economically unsound concept. The only value you can logically place on it, in the economic sense, is a dollar or so charge for admission, if and when they charge it."

"The economic value of this forest then, depends on the whim of some bureaucrat who decides to make people pay one dollar to the Government for entering it?"

"Yes," said the taxation economist.

"But, if he should decide to make them pay \$10, that amount would immediately become the value?"

"Yes," said the taxation economist.

"'S funny" replied the Editor. "I figure that this Whatsit Forest has been worth \$165 to me. Well - I might concede that I'd eat and sleep even if I had stayed at home, but it wouldn't have cost me \$20 for sleeps and \$15 for eats. Everything above actual cost at home represents my valuation of this Forest. So does the transportation. I wouldn't have taken the trip except for the enjoyment to be had on this Forest, nor would I have bought the fly rod, reel, and line. I wouldn't have spent any of this money except for the Whatsit National Forest. When we say good-bye to the Supervisor, and I tell him I spent \$165, just to enjoy

his Forest, and you tell him you spent \$165 for transportation, eats, sleeps, etc., and that his Forest has no value, we shall probably leave him scratching his head. Good night. I guess I'll turn in. We've got to get an early start for home tomorrow."

OUR FIRE RECORD AND WHY

By Stanley F. Wilson, R. 3

In looking over the fire studies of the individual Forests one notices, of course, the general decline in acreage burned from the time of the creation of the Forests down to the present. But he is almost hit in the face by the tremendous variations in burned area from one year to another in the years prior to the last ten - 35,000 acres burned on a Forest one year, 1,000 acres the next, down to a few hundred and up again to many thousands. Good and bad fire seasons, poor communication, inaccessibility, scanty and inferior improvements and equipment, and poor or spotty organization seem to me the reasons for the big variations. No two fire seasons will ever be alike, but constant improvements in our methods and tools are making it increasingly difficult for the bad season to cause the blowups and "busts" which have happened in the past.

Consider the following records for Region 3, before us in tabular form since 1915.

Gross Areas Burned Inside National Forest Boundaries and Numbers of Fires

Annual average 1915 to 1919 was 39,809 acres in 602 fires.

" " 1920 to 1924 " 19,449 " " 612 "

" " 1925 to 1929 " 10,903 " " 903 "

The 1930 figure " 2,579 " " 706 "

The 1931 figure " 3,879 " " 768 "

Man-caused Fires Inside National Forest Boundaries

Annual average 1915 to 1919 was 342

" " 1920 to 1924 " 277

" " 1925 to 1929 " 221

The 1930 figure " 229

The 1931 " " 216

Per cent of Fires Inside National Forest Boundaries Reaching

Class C Size (10 Acres or Over)

Annual average 1915 to 1919 was 16%

" " 1920 to 1924 " 13%

" " 1925 to 1929 " 6%

The 1930 figure " 5%

The 1931 " " 5%

Detection & Suppression Costs (Exclusive of Yearlong Salaries)

Average 1921-25 Det. \$29,170 Sup. \$28,185 Total \$57,355

" 1926-30 Det. 32,857 Sup. 22,295 Total 55,152

For 1931 Det. 29,836 Sup. 18,260 Total 48,096

What has caused the constant improvement in our fire record? A Supervisor reported last year that "Through the cooperation of the Almighty the _____ Forest had no 100 acre fires in 1930." Probably quite true. Note the inference, however, that while credit was due to the Almighty the Forest force also helped. We are helping ourselves in a multitude of ways. We have built up an organization trained to hit fires quickly, and not to leave them until they are "black out." We have improved our communication, our detection system and our fire improvements. We have developed our roads and trails and made use of modern

means of transportation to reach fires quickly with adequate men and supplies. Through Public Relations contacts we have decreased the number of man-caused fires in the face of increased forest use and have educated the public to assist us in detection and suppression, as well as in prevention of fires. We have developed, tested and perfected more efficient fire tools and better rations and have greatly increased the use of water in suppressing, and particularly in "mopping up" fires. Improving range conditions, with the presence of more inflammable material on the ground, continue to challenge our best efforts in fire control. We are not fooling ourselves into believing that we will have no more large fires. We do feel, however, that we have made real progress and that we shall continue to do so.

- From "The Forest Pioneer," R.3.

YE EDITOR DISCOVERS

The Forester recently approved the establishment of two new primitive areas in Region 2 -- the Cloud Peak, within the Bighorn Forest, and the Flat Tops, within the White River Forest.

The Cloud Peak Primitive Area, which contains 94,000 acres, comprises the central core of the uplift forming the Big Horn Mountain range. Within this area are nearly 200 lakes. Numerous dude ranches in the Bighorn region are within reach of this area and their many guests make pack horse trips into it and enjoy camping far from settlements and main routes of travel. Commercial timber values within this area are relatively small. Only about eight per cent of the whole supports a stand of commercial timber which, under present conditions and for many years, will be relatively inaccessible. There are, however, large areas of noncommercial timber having a high value for watershed protection.

Flat Tops Primitive Area includes an area of 117,800 acres located between the North and South Forks of White River and extending eastward to Derby Peak, Sheep Mountain, and W-Mountain. About two-thirds of the area is covered by stands of Engelmann spruce, lodgepole pine, Douglas fir, and aspen. Because of its inaccessibility and distance from markets, this timber is valuable principally for its watershed protection. Three tracts within this area have for some time been reserved for the purpose of providing summer range for deer, elk, and mountain sheep and preventing their molestation.

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The Post Office Department will issue a special 2¢ stamp on April 22 to commemorate the Sixtieth Anniversary of Arbor Day and the One Hundredth Anniversary of the birth of J. Sterling Morton, through whose efforts the day was first set aside for the planting of trees. The stamp will be printed in red and will have a central design of a girl and boy planting a tree, adapted from pictures furnished by the Forest Service. First sale of the stamp will be at the Post Office at Nebraska City on April 22.

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Bids for 105 portable and 27 semi-portable radio sets were opened in Portland on March 21. The low bid on the portable sets was \$48.84 and on the semi-portable sets \$146.44, less 2 per cent discount for payment within 10 days. The successful bidder will have 60 days from date of award to manufacture the sets.

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A stand of 4½ acres of pure even aged yellow poplar in North Georgia measured by the Appalachian Forest Experiment Station shows that the annual growth has been 402 board feet per acre, by the Scribner Rule. This stand is 58 years old. The analysis of increment borings shows a gradual falling off in the rate of the diameter growth made during the last twenty years. Forty-four per cent was made in the decade from 1922 to 1931 and 56 per cent during the period 1912 to 1921.

BACK TO SCHOOL

By F. G. Renner, California For. Exp. Sta.

"I wish I were a little younger, I'd like to go back and take some more work at the University."

How many of us have not heard a fellow Forest officer make some such remark, or indeed, have we ourselves not some time expressed the same thought. The other day I had the pleasure of a brief visit with the supervisor under whom I first worked,—sixteen years ago; "Hal" Sylvester, whose retirement from the Service, after eleven years as topographer with the Geological Survey and twenty-three years as Supervisor in charge of the Wenatchee National Forest, was announced in these pages last summer. During our conversation, I asked the usual question as to how he was keeping busy in Seattle after the pressure of administering a National Forest. In the most manner-of-fact voice, he announced that, "Freshmen in law school at the University of Washington didn't have a great deal of time to get into mischief."

How many of us, thirty-five years out of school, will still have enough of that vivacity of imagination, youthful spirit, and courage, to start in all over again to explore and master a new field?

IMPRESSIONS

By Gerald S. Horton, Chippewa

Once more the year has rolled around to the season when some representative of the Forest Service ventures forth to visit the leading forest schools in the eastern portion of the United States. It is quite obvious that this contact between the Forest Service, the schools, and especially the students, is a fine thing for all concerned. It is also quite obvious that a correct impression of the Forest Service be left by the Service representative with the students. The Service should not be represented as a "work house," neither should it be represented as any oasis in this hard but kind world.

When a student several years ago at an eastern University, I received altogether too rosy a picture of the Forest Service as depicted by the representative who talked to us. Perhaps my classmates and myself were in an optimistic receiving mood but, nevertheless, we received such an impression. This impression gave me an entirely wrong attitude towards the Service for the first year, and, to put it mildly, I was bitterly disappointed and resentful.

I remember very clearly that my impression was that within a few months after entering the Service one would become a district Ranger with a home of his own. In fact a particular young Ranger was described, living a happy life with his wife. Wonderful thought I. (I was planning on getting married just as soon as I graduated.) We'll have a home of our own.

As a matter of fact, the first year I was detailed around, landing for the first winter on a timber survey party on the Superior National Forest, with my wife many miles away. There together with several other young neophytes I cursed the Service, the brush, the snow, and most anything that came along. We swore soundly that if we were sent there again we would resign.

Out of it we came, wiser and all the better for having gone through it all. A ranger district in the spring looked as wonderful to me then as a Regional Forester's job would now, in fact more so.

Please do not feel that I am criticising the method of breaking in new men. But I do feel that a prospective forester should be gently informed that his first year or two in the Service is quite apt to be tough and he should be told what he shall probably have to go through.

ROAD SPEED INVESTIGATIONS

By H. R. Jones, Washington.

In 1926 the Office of Engineering started some tests to determine the effect of curvature, grade, width, surface conditions, etc. on car speeds on Forest Service roads, with the idea that the data could be used as a guide in building roads to give a required service as measured by rate of travel. The data on curvature have been available for some time.

Lately our efforts have been concentrated on the effect of grade. Hundreds of test runs were made on many different grades and last spring Mr. Shank, while on detail in Washington from R 4, compiled the grade data. It became apparent that the only practical method to include all of the makes and models of vehicles in use by the Service was to develop a system of computing the performance. The help of the Bureau of Standards was obtained and a satisfactory method of computing speed on grades was developed. This takes into account the rolling and air resistance at different speeds, the mechanical efficiency of the machine in the different gears, and the effect of elevation on motor power. I made additional field tests last summer to check the computations. The test method consisted of timing with a stop watch the travel over a measured course, at full throttle, the truck being brought up to the maximum maintained speed on the grade before entering the test section. The elevation above sea level and the total weight of the truck were noted. The tests were made in California and Colorado, mostly on Forest Service roads. The Pikes Peak road was used to check the performance at high elevations.

Graphs are now available that show the maximum maintained speed on grades in all gears at varying elevations, for several classes and makes of trucks and for light passenger cars. Comparisons of different makes in the same class are shown as well as the average performance for each class such as light cars, 1 1/2 ton trucks, etc. One use for the material which was not foreseen is as an aid in the selection of trucks best suited for Forest Service work. The graphs illustrate a method of rating trucks for climbing ability and speed. They are of value in selecting the combinations of motor and gear reductions that will give any required performance.

EXTENSIVE EDUCATIONAL CAMPAIGN STARTS ON THE CIBOLA

The first of the spring educational campaigns started March 10 on the Cibola with a showing at the Nogal Mine. The Cibola plans to cover 31 points on the forest and hopes to spend a week at some of the Indian Reservations if a schedule can be arranged. They will not be finished until around April 15, or the 22nd, if the Indian Schools are covered. Mr. Jones is starting out with J. C. Nave, who will remain with the outfit during the entire campaign, but will return a week from today or as soon as everything gets to running smoothly.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT. *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Thomas Roosevelt

Vol. XVI No. 15

Washington, D. C.

APRIL 11, 1932.

"THE NOW AND THEN" OF PRIVATE FORESTRY

By J. A. Fitzwater, Washington

As Garver says in his article "Forestry - Abstract or Concrete," in the March 21 issue of the Bulletin, the first question to be answered in private forestry is, "Will it pay?" Private forestry demands to know much more than this. It asks "Will it pay now?" The silviculture practiced in the initial cutting is the one big factor which, barring accidents, determines the kind and character of the next crop. There is but little private forestry practiced today where the interests concerned are willing to make any material sacrifice in present profits in order to assure a future profit from the next cut. If the stand is of such character that, after harvesting all products which will show a profit (regardless of condition or age), there will be left a good base for a second cut, it is simply a happenstance. Had the residual stand had present values it would also have been cut. In such a case there is no real planning for the future, no definite set-up of objectives, and in very few instances does the owner have any idea that the land will continue in his ownership until the next crop is harvested. To me such a cutting does not represent the practice of forestry; the local community and the country at large are simply fortunate that the stand happened to be in the condition it was when the operation reached it, or that the land accidentally reproduced.

Certainly utilization and marketing form a most important part of forestry practice, and the individual who ignores them can not hope to practice successful forestry. However, when we sacrifice ordinary common sense silviculture based on demonstrated fact, for immediate profit, right there we draw the line between commercial exploitation and the practice of forestry. It's all very well to say forestry must pay! Certainly forestry must pay, but when? It is no secret that it requires a long period of years to grow a crop of trees. Forestry is a long-time investment, and investments made at the time of the first cutting may possibly not be entirely returned at the time of the second cutting, but may even extend into the third. Must we be able to say that an investment made this year will be returned next year in order to justify private forestry? Is that our conception of an investment in forestry? Just how do we intend to use these "balance" sheets - balance when - now? As a matter of fact, the bulk of the practitioners of private forestry mean just that, and that in itself should be a pretty clear indication of how sincere the intention may be. How can it be shown on that much-heralded balance sheet just what the profits will be at

the time of the next cut, without, even with the best of facts, entering to a considerable degree the realm of speculation, and if this is so and these private practitioners really intend to make that speculation, how can we show them those results which "can be seen and not just felt"? On the balance sheet of today can be shown whether it pays to cut a certain species or a tree of certain proportions and condition, but I fail to see what relation that has to forestry if its removal or lack of removal defeats all accepted principles of silviculture. I should say it was just simply a case of deciding whether the utilization of a certain raw material would pay. Such a decision is not peculiar to the logger and manufacturer of trees; it applies equally as well to the manufacturer of steel, automobiles, or what-not. The forester has to know what it will pay to utilize now, and then decide whether to take the cash or to invest in the future crop from the same land.

This is not an attempt to discount the practice of private forestry, but rather to point out why such practice is not of interest to the average lumberman; neither is it an attempt to condemn him. To justify an individual or company practicing forestry, the initial stand must be of such character as to assure a second cut in a comparatively short time with a moderate outlay of money. This usually means that the area must be:

1. Large enough to support the operation until the return cut.
2. Reasonably accessible.
3. Of good site.
4. Stocked with operable species.
5. Close to a labor market.
6. In a region of low taxes and protection costs.

These factors can not be considered of equal weight, yet the absence of any one of them may be sufficient to make the practice of forestry too hazardous a venture for private capital.

We all know individual cases in which private forestry is being practiced and a definite policy has been set up and adhered to even during the present economic depression. It is characteristic of such practitioners, however, that we hear but little about them -- they just go ahead and saw wood. We also know of a great many more cases where wide publicity had been given to the fact that forestry was being practiced and the owners committed to the principle of sustained yield, and where, when the depression arrived and economies in operation became necessary, expenditures and investments in forestry were the first items selected for the axe under a program of retrenchment.

We will probably always have a certain amount of private forestry of the first class which will carry on regardless of temporary fluctuations in economic conditions, but it seems reasonable to anticipate that most of the private forestry endeavor we will see will be of the second class, and that the effort will be rather sporadic. Considering the length of cutting cycles in the case of selection cuttings or of rotations in the case of clean cutting with seed trees or planting, a good many depressions can occur during the gap between cuts. Forestry is not a practice which can reach successful conclusion on a sporadic basis. If we really intend to have productive forests and to grow successive crops on a large scale in the United States with some assurance of continuity of endeavor, there is believed to be but one answer and that is publicly owned forests -- Federal, State, and communal. We hear much of forestry as practiced abroad, with frequent reference to the large percentage of such practice in private hands, but when an actual analysis is made it seems that the practice of private forestry occurs largely only under mandatory governmental control or as a side issue to the primary purpose of maintaining hunting preserves. Edward C. M. Richards has an excellent article in the March issue of *American Forests* entitled "Old World Forestry for New," in which he very interestingly pictures the European situation. When the Old World with its better markets has been unable to justify private forestry over the centuries,

it is difficult to feel optimistic with reference to our own situation in the United States.

The need for forests, in so far as the nation as a whole is concerned, is not limited to the production of successive wood crops. There are the additional values so often pointed out of watershed protection, fish and game, recreation, and climate. Private forestry is not concerned with these attending attributes of growing forests; the almighty dollar must speak and speak loudly in a real remunerative way -- and logically so. It isn't asked that private forestry should be so concerned in such values except as they may be used to make the forestry investment profitable, such as fish and game and recreation; but isn't the fact that it is not so concerned just one more valid argument for publicly owned forests? It is interesting to note a recent article by Wm. G. Howard in the "Forest Worker" concerning the State Forests of New York, in which he attempts and in fact does justify the maintaining of these forests on the basis of recreation alone. These values, although more or less intangible, are nevertheless real and present, and the cost of maintaining them must be borne by the people as a whole. Mr. Kylie in recent issues of the Bulletin proposes one of the most logical methods yet proposed for arriving at these values, but whether or not we are able to put the dollar mark on them, they are there and thinking people must admit their existence.

THE IMPORTANCE OF WILD LIFE RESOURCES IN THE PLANS FOR FOREST ADMINISTRATION

By Cyril S. Robinson, Sequoia

In every subject presented at the December meeting of the Society of American Foresters in San Francisco, wild life in some form or other was mentioned; not always in a general way, but directly, as if it were of sufficient importance to justify recognition.

Within the last few months, two articles have appeared that are outstanding in calling attention to the economic value of our wild life resources on National Forest land: that of Mr. Elliott S. Barker, Game Warden, New Mexico, in his "Wild Life as Asset in Attracting Hunters," Service Bulletin, January 18, 1932, and that of Mr. Roy H. Blood, Sierra National Forest, in the California Ranger of December 18, 1931.

The actual cash value of our fish, game, and fur-bearers, while not always so clearly shown as in both these excellent articles, is certainly much more than we perhaps realize. That it costs us little in time and money, is true; but if put to the vote of the average citizen, it is questionable if he would not place it far above many of our present prized projects. Also, if the authors are correct in their statements, and we have every reason to believe that they are, what are we going to do about it?

At the meeting referred to, a request for information on matters pertaining to wild life was made by executive officers of the California Fish and Game Commission. This is something which concerns the men of the Forest Service in no small way, for there is no one in a better position to supply this information than the man in the field. I believe that we have in the past, given such information as was considered satisfactory; however this cannot be said, in view of the requirements, of our reports on the conditions of today. Our census of game and fur-bearers falls short in its lack of corroborating data, in comparison with, for example, the reports on range conditions and feed for domestic livestock.

Of the larger game animals in the National Forests of this district, we have a fairly good count, but who of us can truly vouch for the correctness of the figures given in the census of fur-bearers? What is the basis of our conclusions regarding numbers? Upon what actual knowledge do we place our figures and statements?

The Forest officer must do the best he can to furnish these facts and figures, and the results obtained by observation and collected evidence, are remarkably good for the limited time at our disposal. Many of us, when on field trips, make notes in our diary of the kind and numbers of game animals and birds seen each day. On some Forests, an annual count is taken of the deer on their winter range, at the same place and date. All of this is good information, but in almost every case our reports are dependent largely upon the amount of time at our disposal, and the personal interest of the individual. The "same as last year" figures are still seen on the census sheet, often, no doubt, in preference to a hurried guess based on limited observations. The plain fact is that with the pressure of other duties we cannot spare the time to go into the job of securing a better count.

In common with other projects that we want to know more about, this matter of wild life management will in all probability have to wait until money, time, and men can be made available by the experiment station staff. With the keen interest displayed by every member of any Forest in Region 5, it would seem unnecessary to "rest on our oars" until help arrives. I believe that with the present organization, very much better results in the way of management, and consequently more authentic information, can be obtained, if the subject is elevated to the position it rightfully deserves. In other words, give it a more active part in our policies, give it some real time in our work plans, encourage men to actually put in time counting deer, fur-bearers, and game birds. Make it a real part of his job that a district ranger knows where his largest covies of quail can be found at certain times of year; if the numbers of grouse that nested on the slopes below the lookout last year are the same; where the deer feed during the seasons of the year; the route of migration from seasonal range; and if the State game refuge within his district is fulfilling the purpose for which it was intended. Let him take time to examine the stream-banks for signs of fur-bearers, question the trappers, and know the location of their camps, and count the pelts brought out.

I believe that the Service as a whole should be more cognizant of the present situation, especially in regard to trapping of fur-bearing animals. We are able by law and established season to maintain our supply of deer, by skilful planting to keep up fairly well with the demand on our streams, but what of the pine marten, mink, fisher, and others?

Beyond the protection afforded by law, these little animals must shift for themselves against their natural enemies, and do the best they can to evade the hazards of clever man-made traps and abominable lures often so concocted as to be a disgrace to a community of true sportsmen.

The question may be raised that if a trapper is smart enough to "out-wit" the wild animal and so bring in a bigger and better harvest of skins, why should we interfere? In the past, wild life was plentiful and the population scanty; now the reverse is true. The business of trapping fur-bearers is solely for the purpose of the sale of the pelts, and if we expect to continue to make this one of our permanent crops, it behooves us to know more about that part of our animal kingdom than we do at present. The request for information is timely. The game wardens, in view of the enormous territory they have to cover, cannot familiarize themselves with certain local conditions in National Forest areas, and it is to us that they look for help and information. Our territory per man is smaller and, by virtue of the fact that it is our job, we are better acquainted with the actual situation on the ground.

This is not to be construed as a plea for more refuges. Deer, for example, are not diminishing in the forests, nor are they scarce, nor is the matter of depredations by predators a serious one. No new laws are especially needed, and, beyond an occasional addition, or change, the present legal confinements are sound and good. It is, however, a very definite plea that the Forest Service should be the active head in the development of plans for land and wild life management which will place our animal crops upon a "sustained yield" basis.

At present, the Forest officer might certainly be excused if he thinks that there is

something decidedly ironic in being appealed to for active support in wild life conservation, and at the same time seeing certain forms of wild life as are harbored on the acres under his jurisdiction exposed to possible extinction. If the kill exceeds the production, then extermination is inevitable.

SUMMER HOME STRUCTURES WILL RECEIVE RATINGS

By L. F. Kneipp, Washington

The Forest Service has long recognized that in the development of summer home special use areas the basic requirement is that the structures erected thereon shall be artistic in design and exterior decorations and shall be located so as to most effectively harmonize with their particular setting and the general environment. There is not much dissent to these principles, but in their application there is infinite room for difference of opinion and judgment. Individual concepts of artistic design, appropriate exterior decorations, and location in relation to the environment are almost as numerous as the field officers of the Forest Service.

In an effort to bring about a reasonable harmony of understanding, selections have been made of approximately 125 photographs of special use summer homes. These are to be mounted in a large folio and opposite each photograph is to be a rating scale comprising the ten major elements which govern judgment in the appraisal of a particular structure. Six of these elements are determinable from photographs of the exterior of the structure the other four would require examination on the ground or of the interior of the structure.

As the initial step in the study, the six elements determinable from exterior photographs will be rated by Dr. Frank A. Waugh, who collaborates with the Forest Service in recreational planning, his conclusions being expressed in figures on the scale opposite each photograph. When this has been done, the folio will then be sent from one Region to another for review, comment, amplification, and possible revision of weights or ratings. By the time it has made the rounds of the Regions and has been augmented by their comments and suggestions, it should provide a basis for a final prescription, at least partially, of the standards which should govern the Forest Service in passing upon plans for summer home construction or in establishing minimum architectural standards to govern subsequent construction by special use permittees. The ability of the men in each Regional office who devote time to recreational planning to secure a somewhat definite and graphic rating of good or poor types and to share the ideas of men engaged in similar work in other Regions should be helpful in some degree in bringing about a common understanding throughout the Service and in making available to each Region a knowledge of the results obtained or planned in other Regions.

WHY NOT ABOLISH THE SIGNATURE MYSTERY

OR

ARE WE OLD FASHIONED?

By Stanley F. Wilson, R. 3

I hold no brief for Army methods and have never favored their general application to the Forest Service - far from it. We had entirely too much of them following the War.

But - having been willing to accept a number of practices of doubtful worth from the Army, why do we hesitate to take from them two little things of real value?

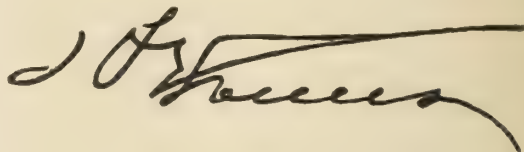
The first is the practice of typing on letters the signing officer's name as well as his title. Many business houses (and some Forest offices) do this. It is particularly appropriate for us to do so, since our letterheads do not show the names of officers likely to sign mail and the recipient of a letter signed with an illegible flourish cannot check it against legible print when he replies. (Of course I appreciate that he is supposed to reply to the office rather than to the individual - but he is entitled to know the name.) Having some years ago noticed letters on game matters addressed to "Aldo Feofold" I have long been a convert to typed names. Recently I note that at least one Regional Forester (whose hand is quicker than the eye) has adopted the "typed signature" practice. Power to him! What argument can there possibly be against it? Besides the saving in time and embarrassment to the recipient of the letter, the saving to the stenographer in not having to stamp names on all copies of letters should be considered in these days of vaunted efficiency.

The second simplifying practice I recommend is that of showing dictating officers' and stenographers' initials on the originals as well as copies of all letters - at least on those within the Service. Some of the advantages follow:

1. Convenience and time saving to stenographer. (Ask her about it.)
2. The dictator will be more careful what he writes because the receiver will know he wrote it.
3. The signer will approve the thought in the letter but need not have it written exactly as he would word it.
4. The recipient of the letter knows immediately who wrote it and is consequently more able to tell just what is meant. Also the shock of getting an intricate letter on range appraisal, for example, signed by the Chief of Forest Management is greatly lessened.

It has been argued by some that the author of a letter should remain a deep secret - that the receiving officer will pay scant attention to a letter from his boss if he sees that the letter was actually written by a subordinate. I can see little grounds for this view. The letter carries the authority of the signer regardless of who wrote it. If anything it carries a double rather than a less weight if the author is known.

Very truly yours,



P. S. Guess whose signature this is?
S. F. W.

YE EDITOR DISCOVERS

An inventory of all timber management plans and policy statements, in effect January 1, 1932, shows 119 policy statements and 135 management plans approved by the Forester. Based on the last three years (1929 through 1931) an average of 18 plans or statements are approved per year. The plans and statements approved during the average year, based on the last three-year period, cover 6,754,067 acres of National Forest land, and 20,974,056 M. B. M. of timber with an allowable annual cut of 239,129 M. B. M.

The Agricultural Appropriation Bill is the only supply bill which has been acted upon by both houses of Congress. It has been in the hands of the conferees for some time, and at present they are trying to find an appropriate method of setting this bill back so that it can be subjected to the same process of a ten per cent further cut to which all other de-

partmental bills are being subjected by direction of the Senate.

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Establishment of the Upper Rio Grande Primitive Area in the Rio Grande National Forest, Colorado, has been approved by the Forester. This tract includes 56,600 acres of land located near the headwaters of the Rio Grande Del Norte and takes in the entire drainage of Ute, Weminuche, Big Squaw, and Little Squaw Creeks. This tract is exceptionally worthy of designation as a Primitive Area since it bears little evidence of past human occupancy. It contains no privately owned lands whatever and no logging has been done within the area. An old Indian trail through the Weminuche Pass section of this area was formerly used by the Utes in traveling between the San Juan and Rio Grande Rivers. The only possible and practical means of travel within this region is afoot or horseback, and one might travel for days with a pack outfit within this and the adjacent San Juan area immediately across the Continental Divide without either seeing or hearing any evidence of modern civilization. The Rio Grande Pyramid, 13,830 feet in elevation, is the highest mountain peak and is a famous landmark.

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The sub-committee which is considering the numerous pay reduction proposals is still active, but in all probability no pay reduction measure will be brought out until after the House takes final action on the revenue raising bill.

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The recent windstorm in Alabama which took so many lives and destroyed a great amount of structural and personal property also worked havoc upon many valuable timber stands, says State Forester Page S. Bunker. Air reconnaissance reveals large areas where practically every tree has been blown down. Some of these tracts comprised a large proportion of the remaining virgin timber of Alabama. Although no current facilities exist for making an accurate estimate of the timber damage caused by the tornado, it no doubt runs into the hundreds of thousands of dollars.

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The most ambitious of the notebooks on guard training yet created is one developed in Region 5. This notebook goes a long way in dissipating the confusion and diffusion which sometimes attends guard training. Some 58 specific training lessons or jobs are identified, and the authors have set down in a concise, usable way the things which should guide men in charge of guard training camps in impressing these 58 lessons deeply on the minds of trainees.

SOIL POROSITY

The study of the relation of forest litter to soil porosity, begun by Dr. Auten in 1930, brought to attention such significant differences between old-growth forest and field sites, that investigations were continued during 1931 to include tests of soils of second-growth woods — grazed and ungrazed — and of forest plantations.

Approximately 1,600 soil samples were taken from 22 old-growth forest sites in Ohio, Indiana, Illinois, and Michigan; from 36 second-growth woods in Ohio, 9 of which represented typical grazed and ungrazed conditions; and from 13 forest plantation sites in Ohio and Illinois. Nearly 1,000 field tests for water absorption were made on these same sites.

From the 1930 work it was shown that the upper 9-inch horizon of field soils averaged 15 per cent heavier (less porous) than the corresponding layers of soils under virgin or old-growth forest conditions. Field and laboratory tests made during 1931 have demonstrated that the upper 3-inch layer of average field soils is 43 per cent heavier (less porous) than the similar layer of average forest soil; the second 3-inch horizon of field soils averages 12 per cent heavier (less porous), and the third 3-inch horizons are practically equal in weight (porosity). The tests of water absorption capacity have demonstrated that forest soils absorb water much more readily than do cultivated or field soils. These tests were made at depths of 1, 3, and 8 inches below the soil surface, with the top layer of duff and litter removed from the forest soils. Under old-growth forest conditions, the soils at 1-inch depth absorb water 47 times as readily as did the average field soils; at 3-inch depths the ratio was 15 to 1, and at 8-inch depths nearly $2\frac{1}{2}$ to 1, in favor of the forest soils.

Similar tests have demonstrated very conclusively that second-growth forest soils retain their porosity and water absorption capacity to a high degree when complete forest cover is reestablished and maintained, and that field soils regain much of their original forest porosity in about 25 years after forest plantations have been established. On the other hand, the soils of heavily grazed woods lose their porosity until they closely resemble those of open fields. -

From the Annual Report of the Central States Forest Experiment Station.

REGIONAL FORESTER TINKER SAYS:

"Women are natural conservators and planners for the future. They mean business and look things squarely in the eye. When they took the trip into Northern Wisconsin last summer to intrench themselves in knowledge of forest conditions, I was interested to see the outcome. It was arranged that they should see the bitter as well as the sweet.

"They saw where progress had been made; and where progress had not been made - the devastation as well as the beauty spots. Thus they gained a proper perspective for the job that confronts. These idle forest acres present their challenge to the world of tomorrow. And the women face an unparalleled opportunity to plan for the future."

COPIES OF TECHNICAL BULLETIN 210 WANTED

The supply of Technical Bulletin 210, "Correlation Alinement Charts in Forest Research," by Bruce and Reineke, is exhausted in the Washington office. It will be appreciated if you will send any copies of this bulletin you do not need to the Division of Silvics, Forest Service, Washington, D. C.

HOW MANY?

What is an ideal capacity for a well-stocked trout stream? Who can say? Here is a bit of information on the subject: 540 trout, of taking length, per mile for every ten-foot width of stream. Studies have indicated (how much guess entered into the indication cannot be said) that stream capacity ranges up to 1500 trout per mile of water 10 feet wide and down to 200. Below 200 the stocking is considered very unsatisfactory. - R. 1 Bulletin



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT. *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER.

Theodore Roosevelt

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April 18, 1932

REDUCED SALES - AN OPPORTUNITY

By Joseph C. Kircher, R. 7

The business of Region 7 like that of most organizations has decreased materially during the depression. The receipts of the Region for the fiscal year 1930 were \$535,380, the largest in its history, while the following year they fell to \$251,667, with the present fiscal year showing still further decreases. The receipts, which are mostly from timber sales, therefore showed a decrease of 53 per cent, but the direct cost of handling the sales business was reduced only from \$64,128 to \$43,657 which is about 32 per cent. Possibly it is too much to expect that the two figures should go down at the same rate, because the decrease in receipts is largely due to reduced cut on large sales which are cheaper to handle per unit. So the showing is probably not so bad after all.

There is here a saving of over \$20,000 in cost of timber sales and a larger saving should be made during the present fiscal year. The question is what does this saving consist of and what is to be done with it. About one-half of it consists of money used to employ temporary scalers, the rest of rangers' time and expense on sales. The scalers, of course, will not be employed if there is no timber to scale, and this money will be saved. I can not tell you without a good deal of digging through the records what this \$10,000 was used for in 1931 -- probably to buy some of those supervisor cars and ranger trucks or other equipment. This year it just about covers the assessment against the Region for money to be turned back to the treasury. Next year it will be needed to meet a portion of the more than 20 thousand dollar cut in the Region's funds.

But what of the other ten thousand which is represented by ranger time. We have not cut five Rangers off the payroll and do not intend to do so. This undoubtedly is what a corporation would do in order that it might show a profit or at least reduce a deficit.

One might ask, if the administration of the National Forests is a big business, why not use big business methods and cut personnel when business falls off. My answer is that we are really doing just that. It is true that we are not letting out men, but vacancies are not being filled except in essential positions, and the money saved on decreased sales and other activities is being devoted to other lines of business which have not been entirely handled in the past for lack of sufficient funds. Here I refer to such things as management plans, boundary surveys, setting Class A corners, bolstering the fire organization -- constructive work of all kinds which has been crowded out in the past for lack of time.

Ours is not a business primarily to show a profit in dollars. Our work and our expenditures should in the long run, however, show a profit in public benefits or else our existence is not justifiable. Therefore, we do a lot of things which will never show a profit in dollars going into the treasury, but we believe them to be worth while and profitable in the public good. In short, the savings in handling timber sales (or other business for that matter) must be devoted to something of real benefit or else they ought to go back to the treasury.

Your job and my job are to make sure that these savings are being used for this purpose and that they are not frittered away on needless work or on a let-up in efficiency. The whole thing comes down to planning carefully to get a lot of worth while things done and then doing them or seeing that they are done. When viewed in this light, the decreased timber sale activity offers an opportunity and at the same time imposes an additional responsibility for shifting work from one important line to another. For this purpose our plans of work, if carefully revised, should be of great value in making every dollar count. Our mutual job is therefore clear. Put each dollar to work where it will buy the most in public benefits, and if there are some dollars left which can not be used for this purpose, return them. Our attention to careful analysis and execution of our work therefore becomes more important now than ever before. - From R. 7 Bulletin

TWENTY-FIVE YEARS FOR TIBO GALLEGOS

By Tibo Gallegos, Cochetopa

While meditating and comparing the present with the past, I am surprised to think of the many changes which have taken place in the twenty-five years it has been my privilege to work for the Forest Service.

I took the ranger examination on May 14, 1906, in Salida, Colorado. I received my appointment September 17, 1906, and went to work in the Cochetopa Forest Reserve. There was no ranger station in the Carnero District, to which I was assigned. My station was a portable one - the tepee, used yet for our high range and field inspection trips.

I used my tent station until the Carnero station was built the spring of 1908. It was a log cabin comprising four rooms, and how happy we were to call it our home. I say "we" and "our" for there was the wife and the three little ranger folks.

Money came slow for building and improving in those days. The old Carnero station was not finished until about the year of 1908, the canvas, the paper, the oil cloth covering on kitchen walls, then weather boarding, porches, etc. being added from time to time. The elevation at this station is 9975 feet. At the time of its construction there was no road worth mentioning. The few furnishings and provisions for use were hauled a distance of thirty miles with a heavy wagon and four-horse team. It took a long day each way for the trip to Saguache, which was our nearest post office and trading center.

The old Carnero station was a year-round station until 1927, when it was classified as a summer station. The automobile road was built in 1922. With the coming of the auto, there was the passing of much of the Ranger's social life. Our happiest times were when the Supervisor or an officer came all the way from Washington, D.C., to be our guest for at least three or four days. Likely, he would take a trip with the Ranger and we would get acquainted, and eat camp food together, sleep on the same springy pine boughs, and cast our grasshopper into the nearby fishing hole.

But since the automobile intruded upon our solitude, our brother officers from a distance seem to speed over the districts at a rapid pace and we miss the meals together and the long evening conversations. I'll tell you boys! Times are going too fast to suit me. I often think back with pleasure to an afternoon at the Carnero station, just after the road

was finished. It really was the first carload of Forest officers over the new road - the Supervisor and his assistant and two men from the District office. They rushed in and explained their urgent errand. (?) No, not a forest fire, but, it fairly took my breath when one of the officers explained that the stay was only of a few minutes duration, an hour or two at most, and that Mrs. Ranger would not have time to prepare dinner, nor would they have time to eat it. Then, we all rushed over the hill to inspect a timber sale. In our absence, the wife and little Beulah, through force of habit, just had to prepare something to eat. So, they fried doughnuts and made coffee. It was a drizzly afternoon and we were soon back and ready to start down the canyon, but they insisted that we eat something. I really believe my wife had cut some of those doughnuts with a ten pound pail. One, at least, bore a blue ribbon. I remember Mr. Thompson was drinking soda water when he first went into the station that day, but, believe it or not - he ate those doughnuts and coffee with cream, and declared his stomach condition was much improved. We ate by music, an unseen trio, if you remember. (Mr. Gallegos has a musical family - Editor). I have often wondered which it was that helped Mr. Thompson, - the soda, the music, or the doughnuts. Well, that was the beginning of the end of our good times. Our brother officers sometimes go by now, at high speed, and seem content with a glance at the station from the road. I even tried to flag Mr. Hatton and Supervisor Mack last summer, and failed to stop them.

I recall the early years at the Carnero District when there was heavy snowfalls in this country. (Climatic conditions are changing rapidly, too.) I had three sawmills to scale and mark timber for at distances of from 5 to 9 miles. The snow buried all the fences of our station and I made my trips on snowshoes. I used a sled for half the distance to town, transferring to a spring wagon for the last half of the trip.

In the good old days, back before the "teens" we did not have the privilege of the work plans. Every Ranger groped his way through the constructive stage, somewhat like the blind leading the blind. It is true that at the presentation of the work plan many old Rangers viewed the idea out of one corner of their eyes with skepticism, and wondered if it wasn't to add another pound to the camel's back. But, once in practice it proved a boon to our program, a fine thing that we should regret to see go out with time.

Much riding was done in the first years of forestry, due to the fact that the range had to be divided between the cattle and sheep men. We had a great many arguments in regard to the range, by both parties, each one trying to establish his prior right. After listening an hour or two, sometimes a half day, it was up to us to take action and decide on the lines, following topography features wherever possible. One of the most practical ways to avoid later controversy was to come to a mutual agreement by the use of designated parks, ridges of rock, or timber land. At times our action was not esteemed the highest, nor counted as law. But some way, we got by.

In those days there were no trails except the cow trails, and the trails surveyed by cows are so misleading. I recall one of the early Forest assistants who followed one of those trails from Saguache park, expecting to lodge at Carnero station for the night. Instead, he ended at the summit of a high dark mountain, decided that the trail led to nowhere, and camped for the night, without the equipment for the purpose. He came to our station for breakfast next morning, none too cheerful for his experience. Anyway, the trails were built, then, by the local force. I remember with gratitude when our Supervisor would go out on the new trail, in the making, and move as many rocks, cut and saw as many trees, as the Ranger. Those were times none too easy to forget.

We moved from Carnero District, March 1, 1926. It was leaving our first home in the Forest, and it took persuasion from those that knew what was best, and effort on our part to transfer to the Upper Saguache ranger station. This is a little town - termed by some. We have the comforts and conveniences of an almost modern five room cottage with bath, hot and cold water, telephone, cement walks, etc. Also, an administrative building of two rooms. - office and visiting officer bedroom, a combination garage and work shop, machine

shed, barn, granary, chicken house, and cement cellar. We are only half a mile from the main highway, - forty-five minutes drive from Saguache.

We like our new ranger station, supremely well, now, and I am persuaded that, "All things work together for good to them that love God."

FIRE PREVENTION AS DESCRIBED BY A COLORED MINISTER

The following is a speech made by a negro preacher at Mt. Marion school on the Trinity River in San Jacinto County, Texas, as recently related by Mr. Thigpen of the Texas Forest Service to District Forest Inspector H. J. Eberly. Mr. Thigpen is in charge of the Texas forestry educational work and had just completed a fire prevention talk at night to the colored audience, stressing particularly the loss of game by fire and therefore the need of cooperation in fire prevention.

"You niggas now have quietude and close attention while I'se adds me some words about this yeah fiah business. I'se wants to tell you niggas you all knows every word what this fiah gemman says am so. We knows dat one fiah we had neah our church house done bunt up five of ouah panicky hogs (Armadillas). Youh niggahs knows what dat meant to us cause you all knows how powerful good day is baked with 'taters,' so don't lets have no moh fiahs. If this fiah man says dat fiahs kills ouah game and huts ouah woods us knows it's so. We'se not gwine let any moah dese fiahs kill ouah game. Let dat be a lesson to you all." The colored audience 'added a lusty, "Amen."

FORESTRY IN THE CENTRAL STATES

The Importance of Forestry in the Central States, and the necessity for a comprehensive conservation program enthusiastically supported by awakened public opinion, is not yet fully appreciated by the people of the region, nor by the forestry profession of the nation. Until this situation is remedied by education, progress will necessarily be slow.

During the past era of constant industrial and agricultural expansion, this prosperous Central States region has given little thought to its extensive degraded and impoverished areas, or to the loss of its resources exhausted by exploitation. Gradually, however, the public is becoming conscious of the necessity for an extensive program of restoration, to safeguard the public interests. The establishment and conservation of forests on the poorer, non-agricultural lands is becoming recognized as essential to the solution of the growing problems of flood and erosion control, water conservation, utilization of abandoned waste lands, conservation of wild life, and public out-of-door recreation. These forest values further emphasize the importance of forestry to a region which now imports more than four-fifths of the wood and lumber used, at a cost of hundreds of millions of dollars annually.

Probably no other region has been more handicapped in the past by public indifference to forestry. Even now many organizations and individuals who should be vitally interested still fail to appreciate the full significance of the movement. The Federal Forest Service, with its interests chiefly centered in those regions supporting National Forests, has been forced to concentrate its work and its support elsewhere. In each of the several States more or less progress has been made by local agencies, but until recently there has been little regional coherence to the forestry and general conservation movement.

In 1930, the recognized need for team work and cooperative effort found expression in the creation of the Central States Forestry Congress, with the first meeting held in Indianapolis in December, 1930. This organized effort has prospered, and the second Congress, held in Cincinnati in December, 1931, presented a splendid program, was well attended, and created much interest and favorable comment.

This and other efforts to advance forestry in the Central States demand and deserve the support of the forestry profession and conservation organizations everywhere. No national program can progress as it should without the intelligent backing of public opinion in the populous region of the Central States. It is here that the agricultural interests, so influential in public affairs, must be convinced that the forestry program deserves their support. The national problems of land erosion and flood control are of major importance in this region. Nowhere is the conservation of wild life so dependent upon the establishment and protection of woodlands. Forestry in the Central States can no longer be ignored. -
Annual Report of the Central States Forest Experiment Station.

A HARD WINTER FOR DEER

By Andrew G. Brenneis, Lassen

On March 1, 2, and 3, while helping Ranger Brokenshire map the Dry Creek Fire, we found many dead deer. We actually saw 23 dead deer on the trip and counted on an average of 100 live deer each of the three days. The dead deer were centered around the Skelton Pasture at the Forest Boundary on the north side of Big Dry Creek although some were found on the south bank of Big Dry Creek and on the hogback leading into Big Dry Creek from that side. The dead deer all had been apparently in very poor condition and seem to have died in the last two to five weeks. Another point noticed was that all of the dead deer were young; by far the greater percentage being last year's fawns.

The greater majority of the live deer seen were in poor condition.

It is quite evident that there was a severe shortage of feed in this area last fall and winter, as all browse species were stooped down to the ground and the taller bushes were browsed up as high as a deer could reach. Even the Juniper was cropped as high as deer could reach and this, to my mind, shows a decided lack of feed. This shortage of feed may be due to the large area of burned-over land which is normally fine deer forage.

We talked with two cow-punchers and they told us that, up to a month ago, when ground feed began to grow, it was common to raise a bunch of deer in that area and many of them would be too weak to stand up and stay on their feet. It was their opinion that the deer were starving, as they said that farther up the canyons, where no browse had been destroyed by fire, the deer seemed in fine condition.

In one narrow strip from Skelton Cabin to about 100 yards west of the Forest Boundary, an area of about 30 acres, we found 17 of the dead deer.

There is no question but that we saw only a very small percentage of the deer that died, as we were merely running section lines and traversing the fire. No doubt, an intensive search would show alarming numbers.

This thing should be thoroughly investigated, as it really is assuming the size of a great problem. -

R. 5 Bulletin.

MORE EARLY FIRE

"A (passenger) pigeon roost is a singular sight in thinly settled states, particularly in Tennessee in the fall of the year, when the roost extends over either a portion of woodland or barrens, from four to six miles in circumference. The screaming noise they make when thus roosting is heard at a distance of six miles; and when the beech-nuts are ripe, they fly 200 miles to dinner, in immense flocks, hiding the sun and darkening the air like a thick passing cloud. They thus travel 400 miles daily. They roost on the high forest trees, which they cover in the same manner as bees in swarms cover a bush, being piled one

on the other, from the lowest to the topmost boughs, which so laden, are seen continually bending and falling with their crashing weight, and presenting a scene of confusion and destruction, too strange to describe, and too dangerous to be approached by either man or beast. While the living birds are gone to their distant dinner, it is common for man and animals to gather up or devour the dead, then found in cartloads. When the roost is among the saplings, on which the pigeons alight without breaking them down, only bending them to the ground, the self-slaughter is not so great; and at night, men, with lanterns and poles, approach and beat them to death without much personal danger. But the grand mode of taking them is by setting fire to the high dead grass, leaves and shrubs underneath, in a wide blazing circle, fired at different parts, at the same time, so as soon to meet. Then down rush the pigeons in immense numbers, and indescribable confusion, to be roasted alive, and gathered up dead next day from heaps two feet deep." -

From "Memorable Days in America" by W. Faux (1823)

HOW SUMMER HOMES BENEFIT THE COUNTIES

By L. A. Barrett, R. 5

From information obtained from various sources, it is believed that the average special use residence permittee in Region 5 pays a County tax of about \$10 for improvements. In addition to this, the County receives 25 per cent of the average annual rental (which ranges from \$15 to \$25) or about \$4 per lot. This makes a direct return to the County from each special use residence permittee therein, of approximately \$14. Since we now have some 6,000 improved residence permits, the Counties in which they are located are now deriving a cash revenue of around \$84,000 per year, all of which comes from less than 2,000 acres of land, and most of which comes from people who are not voters in the County to which this money goes.

In addition to this direct tax return is the much larger sum which these permittees pay out for building materials, labor, supplies, etc.

It is believed that if the average resident of the National Forest Counties knew these facts he would be more interested in this feature of National Forest recreational development.

YE EDITOR DISCOVERS

Denunciation of the public service and public servants has become so commonplace on the part of magazines, newspapers, and radio speakers that one of the regular monthly gatherings of the personnel of the Washington office has been devoted to an effort to assure this small group of public employees that they really need not be ashamed of their calling and that their work is as worthy as ever.

On April 6, Herbert A. Smith addressed one of the "family meetings" of the Washington office on the subject "The Public Service and the Forest Service." Stating that since he is the son of a minister he would likewise take a text for his talk, he thereupon read one particularly lurid passage from a recent denunciation which holds the public service accountable for almost everything objectionable that society has fallen heir to. Mr. Smith recounted some interesting historical aspects of the public service, referring particularly to the belief prevalent fifty years ago that because of the spoils system no public service of any continuity or confidence was possible. At one time it was recommended that public forest reserves be placed in charge of the Army because that agency was then apparently the only one having any continuity or possibility for attaining and maintaining technical

competence. The low esteem in which the early body of civil servants was regarded gradually gave way to recognition of competence and incorruptibility. The efforts of recent years to inculcate distrust and disrespect for the public service are not new. There is merely a flood tide or perhaps a high water mark of such efforts being recorded.

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In response to the urgent request of various Regional Foresters, a campaign of simplification of procedure and reduction of report work is shaping up. A special drive of this kind is highly appropriate from time to time and especially so just now when the Forest Service, along with most of the other Government agencies, is facing material reductions in its appropriations. Perhaps the fact of reduced appropriations may aid in winning the consent of outside governmental agencies to a reduction or simplification of reports the Service is required to make for them.

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The Clarke-McNary Law Inspectors for Regions 1, 5, 6, and 9, and for the five districts in the East, with Morrell and Hastings for the Washington office, met in Asheville, N. C., March 21 to April 2. A comprehensive program was followed which called up for question and discussion every important feature of State cooperation projects. Munns, Frothingham, Kircher, and M. A. Mattoon joined the group in a consideration of problems involving Research and the spread of forestry in the East. Members of the Appalachian Experiment Station attended some of the sessions. This is the first time that men engaged in C-M Law work have all been brought together for a meeting of this kind.

The questions of major interest discussed were: determination of allotments to States; application of a conditional allotment plan, and the estimation of the cost of adequate protection as a part basis of Federal allotment; the more effective participation by Federal Inspectors in the analysis of a State's needs and the planning for their fulfillment through budget conferences; the recognition of private expenditures and the manner in which the State and private owner can best join their efforts in fire control; the auditing of State accounts; standard requirements relating to personnel; forest fire statistics; damage determination; stimulation of State appropriations; forestry activities of Inspectors outside of Clarke-McNary Law projects; woodsburning in the South.

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The Region 6 radio crew likes to startle its audience with proposals for new and heretofore supposedly unattainable developments. For example, a recent letter from a member of this crew wants to know how we would like a 15 pound voice plus code plus receiver set for use in scouting and managing large project fires. The range for voice transmission would be perhaps 5 or 6 miles. Uses in scouting and managing large project fires would be obvious.

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As a start in its million acre reforestation program, the New York State conservation department will this spring plant 20,000,000 trees on 24,936 acres. An unprecedented program of State acquisition of land for reforestation purposes was passed last fall as an amendment to the constitution. The amendment carries a mandate upon the legislatures to appropriate in the next eleven years a total of 19 million dollars for the acquisition and planting of approximately one million acres. To date 100,348 acres of land have been purchased by the conservation department under the new legislation.

NATIONAL FORESTS OF THE SOUTHWEST HAVE LARGE NUMBER OF VISITORS

The 1931 report of visitors to the National Forests of the Southwest which has just been completed shows a slight decrease in transient tourists but a decided increase in campers.

Recreational use of the National Forests, began slowly during the early years of administration. The early visitors were largely confined to hunters and fishermen and an occasional camper where the forest lands were near to some town or settlement. During the past decade the influx of recreationists has increased beyond all previous expectations. This is due, it is believed, to the cooperation of the State and Federal agencies in a national road program which has made many regions, heretofore almost inaccessible, now readily reached over a good motor road. The great improvement in the dependability of motor cars is another factor that has made distances, at one time prohibitive, an easy week-end trip. The building up of wild life and restocking of streams by State and Federal agencies has also added another incentive to outdoor life. In this regard the Southwest has been no exception. Its people have taken to the outdoors in increasing numbers each year. In 1931 over 3½ million people visited or passed through the National Forests of Arizona and New Mexico. It is true that many of these were not campers or picnickers but were transient tourists passing through on main highways. Nevertheless, for a brief period they enjoyed the grandeur of our southwestern forest landscapes. The increase in the number of campers would indicate a greater appreciation of the Forests by the local inhabitants. Classified by groups, transient tourists come first, picnickers second, campers third, hotel and resort guests fourth, and summer home occupants fifth. By the modes of transportation the automobile is responsible for bringing more than 90 per cent of the people. However, not all of the people use either the automobile or the railroad, as there was a sizable number of hikers. -

R. 3 news release.

DRY ICE FOR FOREST FIRES

The strange combination of aviation and chemical science was mobilized in mapping a spectacular "war" from the skies on a fire enemy. State forestry officials revealed plans for two interesting experiments in both of which planes will be used as a combatant against fire. Ice of a dry nature has been selected as "bullets" in one of the tests while the other is the secret formula of chemical spray.

An Oakland chemist is perfecting the "ice ammunition" described as crystals made from a sulphuric acid solution. Sprayed from a plane, this snow-like deluge, after reaching the forest fire heat blanket, is said to form into a gas which acts as a speedy extinguisher of the flames.

"In our other experiment we will use a chemical spray based on a secret formula," W. B. Rider, deputy state forester, announced. This solution, after contact with heat, releases a gas that removes oxygen from the air, thus smothering the fire. It contains no poison fumes.

Both of these methods will be tested on the first fires that invade California forests this year. -

R. 5 Bulletin.



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Theodore Roosevelt

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April 25, 1932

"DAD" LORING'S EXPERIENCES

By Frank E. Loring, San Juan

Since the old man with the scythe has now posted my name on time's blackboard and the retirement date is near, I find myself included in that group of men who have passed twenty-five years in the Forest Service. I have been asked to write a few words regarding the early days of my employment. In 1907 I received my appointment as a forest guard, on the White River Forest Reserve. This Forest had but recently been taken over from the Interior Department. The late James A. Blair was Supervisor, with headquarters at Meeker, Colorado. The salary was \$900 per year; there was no forage allotment; no travel or expense money; the Ranger paid all expenses out of his \$75 per month.

With the exception of one two-room log cabin at the mouth of Ute Creek, there were no stations. This cabin was built by the old ex-soldiers who worked for the Interior Department and was used by them as a general headquarters and a place to tan elk and deer hides. As they worked for \$60 per month and furnished their own outfits, it was only fair that they should have free meat. This old cabin was my station during the summer of 1909. It was located in the canyon of Ute Creek and in mid-summer there were four hours of sunshine on the house, and the only direction that one could see was straight up. The summer of 1908, I lived with my family in a tent, at the mouth of Lost Creek and assisted in building the Lost Creek Ranger Station. In 1910 we lived in a tent while I built the Miller Creek Station, at which station I held my ground until transferred to the San Juan Forest in the fall of 1918.

In 1907, the forest boundary lines of the White River Forest had not been established by survey, and no one knew for certain where the boundary was. Much of the interior of the Forest was unknown to the men in charge. The first year, I worked as assistant to Ranger John Shields, training in the duties of a Forest officer, and about all the work I did that summer was to wrangle saddle horses and cook meals for the Ranger.

In 1908, I was given an appointment as Assistant Forest Ranger and assigned to a district that included all the south drainage of the White River. The field and office equipment furnished at that time was not what it is today. I had a Forest Service badge, a marking hatchet, a use book, a green book, and a blue book, which books contained an outline of forest work and the rules to be followed in establishing Government supervision of the Forest. The blue book and the green book were too deep for me, but the use book was the Rangers' Bible of that day, and in some cases the Ranger carried the use book in one hand and a

six-shooter in the other. This combination made "good medicine" and thus advanced the work along the lines laid down by our Chief, Gifford Pinchot.

From 1908 to 1912 most of my time was spent in building ranger stations and telephone lines; also the locating and marking of the forest boundary was carried on for two or three years. About this time (1909) there was a great rush to locate forest homesteads, and thousands of acres of land were listed as agricultural under the Forest Homestead Act of June 11, 1906, that were worthless for farming purposes and upon which a home could not be maintained. In this June 11 work I had the pleasure of assisting Roy Chase, Riley Cass, and D. Kirk Shaw.

In 1910, the grazing pot began to bubble, and by 1914 it was boiling over; grazing rights and priorities were being discussed in a loud voice by many stock owners, and as the instructions given in the use book were only of a general nature the tact and judgment of the Ranger was put to a severe test in deciding the many questions that came to him for settlement. These were happy years, as there was always something of interest going on and much new work to be handled.

The standardization of activities had not started; work plans were unheard of; and the only cost accounting known was to make your \$75 check cover all your expenses.

By 1916, the White River Forest was heavily overstocked with cattle and the sheep were coming in on the Flat Tops. Among the permittees there was much dissatisfaction and hard feeling toward the Forest Service, most of which fell on the Ranger because he was the only Government man in sight. For these conditions no relief was in sight, and I decided to seek a transfer to some other Forest.

In October 1918, I transferred to the San Juan Forest where I found conditions much different than on the White River. I had been working in spruce, and knew nothing of western yellow pine, so had to learn my timber work all over again. I also found the grazing conditions on the San Juan worse than those I had left behind, and it took seven years of careful planning and management to reduce the number of stock on my new district to a point where the forage showed improvement.

Looking back over the years of my employment in the Forest Service, I can see no "high lights," no deeds of valor, no outstanding accomplishment - only the average work of the average man - if I was an average man. My association with Forest Service men has been pleasant and I have found them to be honorable and able men. At the time I entered the Service, I was just the kind of man that was wanted, but times have changed and I feel that I no longer fill the requirements of the day, and so, with best regards to all, I leave the Service without fear and without regret.

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(Mr. Loring, having reached the age of 62, was retired on March 31, 1932, after nearly 25 years of faithful service to his credit. - Ed.)

THE FOREST SERVICE ATTITUDE TOWARD MINING LOCATIONS

By L. F. Kneipp, Washington

Probably there are few features of National Forest administration where the gap between reality and theory is wider than in the case of mining locations and entries involving National Forest land. In reality, the relationship between bona fide miners and prospectors is friendly and cooperative. For every case where friction or misunderstanding has developed there are scores of cases where the Forest officer is a welcome visitor at the mining camp or the prospector's cabin, or where the miner or prospector is the first man to whom the Forest officer turns in case of fire or other disaster. The welcome phrase "You'd better stop and have dinner before you go" or "If you need any help let me know"

makes a strong appeal to the Forest officer's heart, and said Forest officer's consideration of the needs of the miner in planning timber sale management or road or trail or telephone line construction or the employment of local labor makes an equivalent appeal to the heart of the miner or prospector. For every Forest officer who is unappreciative of the miner's prominent part in the scheme of things there are many who will spit on the miner's cherished specimen, rub it on their pants leg, and solemnly express the opinion that it looks "just like that sylvanite from Cripple Creek."

But the theory which has frequently prevailed and been expounded during the past quarter-century is that the Forest Service goes out of its way to oppose and prevent every entry of National Forest land under the mining laws. The impression has been created that rarely if ever does the Forest Service report favorably upon a mineral entry or mining location. To check the correctness of that statement, a review was made in 1931 of all reports upon mining claims or mineral entries made by the Forest Service, and the results thereof are as indicated below. When one considers the numerous known attempts to pervert and misuse the mining laws, a record of 85.5 per cent of favorable reports to the Department of the Interior, in claims cases handled by the Forest Service is rather a striking refutation of the widely spread theory of unvarying antagonism to the mining industry. In detail, the results of the review are as follows:

Cumulative Statistics Concerning Action on Mining Claims in National Forests

Region	Period Covered by this Summary	No. Claims Reported on by For. Ser.	No. Claims Favorably Reported	Per Cent of Total	No. Claims Adversely Reported	Per Cent of Total	No. Claims Cancelled by G.L.O.	Per Cent of Total	Number of Claims Patented	Per Cent of Total
		(1)					(2)			
ONE	January 1, 1906									
	December 31, 1931	3,474	2,808	81	666	19	451	13	3,023	87
TWO	July 1, 1905									
	December 31, 1930	6,656	5,996	90	660	10	612	9	5,827	88
THREE	January 1, 1925									
	December 31, 1929	304	284	93	20	7	22	7	264	87
FOUR	January 1, 1906									
	July 1, 1931	2,627	2,301	87.6	326	12.4	247	1	2,224	84
FIVE	January 1, 1910	(3)								
	December 31, 1930	585	403	70	182	30	169	29	502	86
SIX	January 1, 1906									
	May 1, 1931	1,286	980	75	306	23	242	18	1,019	79
		14,932	12,772	85.5	2,160	14.5	1,743	11.7	12,859	86
								(4)		(4)

Notes:

- (1) These figures include not only the claims involved in applications for mineral patents but also the unperfected mining locations contested because of fraud and interference with National Forest administration.
- (2) Includes also claims abandoned or relinquished after adverse report.
- (3) Based on numbers of reports, some involving two or more claims; hence percentages irregular.
- (4) Percentage unaccounted for due to pending cases, or failure to complete entries favorably reported.

BEAUTY VS DISTRACTIONS

By Francis E. Williamson, Jr. Mount Hood

Distractions when placed in the strong light of research will show many sides, phases, or kinds but for this discussion we will place them in two general classes; i.e., man-made, and accidental or natural.

Mr. Headley speaks of the annual wild flower show put on each spring on the slopes of Mount Hood and the fact that often, although not always, this flowering paradise is studded with snags; a distraction which Mr. Headley says is easily forgotten or overlooked in the splendor of the blooms. To this, I agree partially. Have you ever seen similar meadows of flowers with a background of green living trees? Yes, you say, and make a mental comparison of the two pictures.

I believe I know why the first or snag-infested picture does not rankle or bother one's perspective too much. This is because the snags are an accident, possibly avoidable, but nevertheless, an accidental tragedy.

Now let us travel along a forest highway, a wonder of engineering, beautiful vistas, -- whoa ---! a hideous borrow pit, stumps, remains of an old construction camp. We start on, but with not a too kindly attitude or appreciation of the beauties when we run across a large slashing in the roadside timber. This is filled with huge, partly-used gravel piles, studded with an orange colored grader and several empty barrels, once containers of patching oil.

By this time, while still enjoying the general scenery of timber, creeks and a snowy peak, we still try to excuse the blundering scars made by man to serve only his immediate needs of construction and made largely because of laxness, or of unguided energy which could have been directed into keeping the roadside natural and still serve his purpose.

No, it is not the natural or reasonable distractions left by fires, selective logging, well designed summer homes or businesslike ranger stations that bother the travelling tax payer. It is the illplaced borrow pits, gravel bins, slashings for power lines, and other avoidable distractions that rankle.

Naturally many or all of these are necessary, but they are usually poorly placed. Somchow our schools of engineering do not require courses in landscaping, but stress utility, haste, and short-cuts until the average engineer does not know what you mean when you ask him to spare the scenery.

I still believe it possible to hide the borrow pits, screen the gravel bins, and, in general, combine beauty with utility. It will take closer cooperation with the engineering agencies and a great deal more inspecting by Forest officers who have a bent or training along landscaping lines, but, then, it is worth it. Does not the great throng of people travel to see the scenery, and does not the great mass of people own our National Forests and highway rights-of-way?

Think it over -- utility with beauty and care.

WHAT IS A FIRE FOREMAN?

Here is Junior Forester E. A. Schilling's description (submitted in connection with R-1 Foremanship Course) of the best fire foreman he -- Schilling -- ever had.

"He was the master of all situations on the fire line. He had the friendship of every workman, knew fire tactics, and his approach was so outstanding that his men gained confidence in him, realized and respected his judgment. His decisions were quick and accurate. He rarely made a mistake. In instructing a man his method was perfectly clear; consequently he never had to show a man twice. His observations and judgment were particularly outstanding..

"In the evening he analyzed camp conditions in order to give the firefighters the best of available conditions. The fire line was as systematized as was the camp. He had his fingers on every activity and when he wished to contact that specific job he knew just where to go without loss of motion.

"He so vested his authority in strawbosses, cooks, and timekeepers that all he had to do was an occasional inquiry into small details; the job was always being done expediently and efficiently. He wasn't the bellowing bull-of-the-woods type, but was quiet, stern, pleasant.

In firing a man he made him like it and there was no argument or dispute. The big job of controlling that fire was his and 'Crowley' filled the bill." - Region 1.

THE FARM WOODS AS A PASTURE

The live stock industry is of major importance to agriculture in the Corn Belt. Every available acre is devoted to raising grain or hay, with the resulting serious reduction of pasture land. On many farms the woods provide the only pasture available. Throughout the Corn Belt it is estimated that there is one animal unit for every 1.7 acres of farm woods.

Under such conditions of overgrazing, the live stock receive little actual forage from the woods, and many such areas have degenerated into mere feed, or dry lots. Moreover, fully 50 per cent of the farm woods have been so badly damaged by overgrazing that they are no longer capable of producing forest products. The complete absence of young growth to take the place of the older trees as they die or are cut down is gradually converting grazed woodlands into open pastures. If the present system of live stock management is continued, the farm woods will eventually disappear.

The solution of the grazing problem is regarded as the first essential objective leading to the development of plans for the proper management of farm woodlands in this region. All of the permanent grazing plots located to date have been selected with consideration of their adaptation to studies of woodland management. The field work of the grazing study will eventually be limited to the periodic remeasurements of established plots; it will then be possible to devote some attention to the more comprehensive study of management of the farm woods.

During the past season, a preliminary study was initiated under this phase through the cooperation of the Purdue Agricultural Experiment Station, to demonstrate that the farm woods of the Corn Belt are incapable of furnishing any material amount of forage under the very heavy conditions of overstocking which prevail throughout the Corn Belt. A rather open tract of oak-hickory woodland, located on the Pinney-Purdue Farm near Valparaiso, Indiana, was subdivided into three tracts of .18, 12, and 6 acres each. These tracts were fenced off, and three head of yearling steers were placed in each on May 1. They were kept adequately watered and salted, but no supplementary feeding was provided. Regular weighings were made at periodic intervals throughout the six months' grazing season. The final weighings were made on November 1, at which time the livestock were removed from the woods.

Due to the fact that a period of several years had elapsed prior to the initiation of the experiment, during which time grazing in these woods had been rather light, a dense growth of blackberry briars had become established over the entire area. Some question was expressed at the beginning of the experiment as to whether or not this heavy growth would prevent utilization of the forage on the area. It soon became apparent, however, that the cattle were not only making their way throughout the briars, but were utilizing to a considerable extent the blackberry foliage; in fact, during the latter weeks of the experiment there was practically nothing else available.

SERVICE BULLETIN

Exceptionally favorable growing conditions, and the accumulation of forage during the several years of light grazing, were probably responsible for the ability of the livestock to withstand serious loss of weight in the two larger tracts before the close of the season on October 31. It became necessary to remove the animals from the six-acre tract on August 1. The animals in the 12 and 18-acre tracts were able to remain until the close of the season without losing entirely the gains made earlier in the summer. It was obvious, however, that the peak of utilization was reached about September 1, as weights rapidly dropped after this date in both tracts. - Annual Report of the Central States Forest Experiment Station

COMMONSENSE CORRELATION

The Regional Forester at Milwaukee proposed to meet the cut in planting money next year in part by reducing sharply the scale of work on the Huron Forest, while maintaining the former size of the annual job on the Marquette at a very slightly higher total cost per acre. This brought a question from Washington. Correlation of activities proved to be the answer. Most R-9 planting is done in furrows, in the fall. Tinker's comment is as follows:

"The primary consideration in maintaining the Marquette job has been the desirability of having a couple of tractor drivers in Government employ throughout the fire danger period and thus have them available for immediate action on fires should it be necessary. It is not possible to secure satisfactory tractor drivers on a moment's notice and since the tractor and plow is standard fire fighting equipment on the Marquette which has demonstrated its usefulness, we feel that it is most desirable to have the planting job maintained on that unit. Two tractors will be operated practically full time from July 1 to the planting season. Looking at the program from a strictly planting viewpoint, we could probably plant from 20 to 25 acres more on the Huron than on the Marquette on the basis of the cost of transporting the trees. It is believed that the advantage from the fire protection standpoint, including protection of the plantations on the Marquette, more than offset this small additional acreage." - E. E. Carter

YE EDITOR DISCOVERS

Headquarters of the Northeastern Forest Experiment Station will be transferred from Amherst, Mass., to New Haven, Conn., about June 1. Under a cooperative arrangement with Yale University, the Station will occupy office and laboratory space in a building owned by the University. Since its establishment in 1923 the Station has occupied quarters at Amherst. Owing to the fact that these quarters are no longer available, it was necessary to find a suitable location elsewhere.

One of the advantages of having the headquarters at New Haven is that it will make possible closer contact between the Station and the Connecticut Agricultural Experiment Station. Close cooperation will also be possible with Yale University which maintains one of the largest post graduate forest schools in the country, and is itself engaged upon a wide variety of forest investigations.

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The status of the Agricultural Appropriation Bill is (April 14) that the conferees of Senate and House have agreed to restore some of the amounts cut out by the House. Other

departmental bills which followed the Agricultural Bill in the Senate are being subjected to a ten per cent cut in addition to those already made in the original budget and further cuts made by the House. The Agricultural Bill momentarily has the advantage of having been acted upon by both houses and the conferees before the Senate policy of additional ten per cent cuts developed. The Senate appropriations committee is now considering whether to reject the report of the conferees in order to give the Agricultural Bill a parliamentary status which will put it in line for an additional ten per cent cut. As approved by the conferees, the provisions requiring non-filling of vacancies (except upon approval of the President) and impounding of money on account of unfilled vacancies are retained in the bill, but short term employees are exempt from these provisions.

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Discussion of pay cuts for Federal employees has become a chaos of proposals for a five day week, furloughs, elimination of annual leave, and flat rate percentage salary cuts with exemption of the first \$1000. Only a most powerful mind can hope to follow all the proposals without becoming dizzy. It is by no means a certainty that Federal pay cuts will be made.

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Assistant Forester E. E. Carter and Assistant Regional Forester R. M. Evans, of R-7, left Washington April 3 for the South. They expect to be gone for about a month and will visit the Osceola, Ocala, Choctawhatchee, Ouachita, and Ozark National Forests.

THE GROWTH OF A GULLY

In non-glaciated southwestern Wisconsin and the adjacent corners of three other States, there is a sharp relief and a general difference in elevation of 500 to 600 feet between tablelands and river bottoms. As a result there are innumerable small narrow valleys in which farming is carried on.

The cutting of a gully usually begins at the lower end of one of these valleys, due to the unnatural quantity of run-off water from fields and pastured areas. Once started, a waterfall is created at the active head of the gully, which, by cutting away the loose sub-soil and thereby undermining the heavier surface layer, causes the gully to eat back into the valley land very rapidly. The highest activity is reached when the gully is approaching its greatest possible length in deep soil, and when branches have worked from the main gully into the slopes on both sides. After that a slowing of the soil-removing process sets in, but the main head and the equally important "side heads" still continue to extend their reach. This, too, is finally checked as these heads reach the slopes, where the soil becomes thin or is so filled with coarse rock fragments as not to be readily eroded.

By this time the gully has eaten away all the best soil of the valley, and its arms spread into each little side drainage or depression, like the branches of a tree. The best part of the valley farm has been bodily removed, all the good soil carried away to distant places by the streams, and the remaining fields have been so broken up into small units that management becomes very difficult. The best that can be hoped is that active erosion will now largely cease, that the points and "peninsulas" that have been left between the gully branches will tend to wear down, and that the steep walls of the gully will flatten out sufficiently to make possible a growth of trees or sod. Unfortunately, up to this point, planting of any kind on the gully walls is practically useless. The former field area becomes at best a piece of poor, rough pasture.

Gully formation is not a process by which the fertility and soil of a farm are slowly lost but is literally a cataclysm. For example, one large gully in Wisconsin advanced at a rate of 500 feet per year between 1923 and 1929. At the same time the many branches developed nearly 7,000 feet of smaller gullies. It reached a depth of 50 feet in its middle sector. Four hundred thousand cubic yards of soil were carried away at a rate of more than 40,000 cubic yards per year during the greatest activity. Sixteen acres of top soil were removed and at least 25 acres rendered useless. Since 1929 the gully has "quieted down," only about 27,000 cubic yards of material having been removed, while nine of the branches showed an average advance of only 65 feet. This gully is still not beyond control, but it could have been entirely prevented before any serious damage was done at a fraction of the cost which must now be incurred to "save" the farm. - Lake States For. Exp. Sta. Technical Note

TO MR. SHERMAN FROM MR. SHOW

Just to maintain the well-known California supremacy for the "bigger and better," I enclose lists of property from some of our bigger and better stills. And, property which the U.S. F.S. R-5, with its well-known pack rat ability, has seized and sequestered to its own uses -

1. As a means of weathering the depression in appropriations.
2. As a chance to get something for nothing.

This property is not available for transfer to any other Region, and if this confidential information is used against us in any way, I'll be off the Forester's office for life. I'm sure you wouldn't penalize our ability as rustlers.

Like all great public questions, the Prohibition issue has two sides. S.B.S.

Partial list of property being removed from the seized still
located on Dry Creek, Nevada County.

- 14 Tanks - 750 to 40,000 gal. capacities.
- 1 Allis Chalmers Monarch 35 tractor. Eng. No. M 6542 (New)
- 1 Caterpillar Tractor 30 " No number (Old in bad shape)
- 1 Air Compressor, small
- 1 Pump, Fuel Fairbanks Morse $4\frac{1}{2} \times 3-\frac{3}{4}$ #36885
- 1 Engine Steam Vert. Ohmen 9 x 12 cy. Est. 50 HP
- 1 Motor Elect. Enterprise #8250 2 HP DC
- 1 Pump Cent. 1" Jackson
- 1 Engine Gasoline Fuller & Johnson 3 HP #79629
- 1 " Fairbanks Morse 15 HP Style H Type Y #362337 (Oil,
- 1 Pump. Power Deane 3 cyl. 4x6" #60875 With pullys & belt.
- 70 Sacks Sugar Approx. (Part to military)
- About 4200 ft. of 2" pipe, Black Iron.
- etc. - etc.

THE OFFICIAL RECORD

The Office of Information has requested the Service to revise its list used in mailing The Official Record. In some instances hereafter fewer copies will be sent to Stations and Forests. It is suggested that instead of supplying copies to each member the Record could be routed around.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Robert Roosevelt

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THE BEAR FACTS

By B. F. Heintzleman, R. 8

If the present Senate investigation of the bears of Wall Street diverts public attention for a time at least from the bears at the other end of the country the Biological Survey, Forest Service, Senate Committee on Wild Life, and many Congressmen will breathe the well-known sigh of relief. Likewise the Alaska Forest Ranger, for if the Alaska Brownie should become aware of his numerous "public" and grow tempermental like a movie star he will be harder than ever to live with. (He already thinks pretty well of himself.) Elephant guns and climbing irons may be made stock articles on requisition and affected by every well-dressed field man, while personnel training courses in tree climbing and in "playing dead" will be highly popular.

The sentimental interest shown in this animal in the past three months has been little short of amazing. People from everywhere, few of whom have ever seen an Alaska Brown Bear and if they should see one would play dead without voluntary effort, are writing their Congressmen and other officials in Washington to "pass an act" that will "save this animal from extinction." The more ardent ones, biologists, mammalogists, zoologists, wild life writers, game photographers, etc., are visiting Washington and presenting the case in person. Many of them have some uncomplimentary things to say about the Biological Survey and the Forest Service, which are alleged to have no proper regard, if not a downright antipathy, for the animal and permit and even assist in the extermination program.

All of this started and is kept going by a few wild life conservationists (and may their tribe increase) whose interest has shifted from hunting to the study and photography of wild life in its native haunts. These particular individuals, however, have become over-enthusiastic in their love of the brown bear and are advocating most extreme measures to further his welfare. They are urging especially the withdrawal of Admiralty Island in the Tongass Forest from all forms of hunting and commercial use and holding it as an absolute sanctuary for brown bear -- the world's largest zoo. This is opposed by the Forest Service as being unnecessary either to perpetuate the bear in Alaska or even to maintain the present number of animals on that island; also as being extremely undesirable since Admiralty Island is almost 1,100,000 acres in extent, has eight and one-half billion feet of commercial timber, coal fields, gold deposits, and other resources. provides excellent bear and deer hunting that brings in considerable revenue, and in short is an important part of the most promising and most readily accessible portion of the Territory for further economic development. This is the island that is to furnish the timber supply for the huge paper mill that is projected for Juneau.

The propaganda carried on by speeches, radio, magazine articles, etc., in support of the proposed Admiralty sanctuary has included greatly exaggerated statements about the brown bear situation. The facts, so far as the writer knows, are briefly as follows: The Alaska Brown Bear belongs to the grizzly group and might be termed a super-grizzly. It reaches 11 to 11½ feet in length and 1,600 pounds or more in weight. It is the largest flesh-eating land animal in existence. While the smaller true grizzly roams over about three-fourths of Alaska, the Alaska Brown Bear is confined to about 96,000 square miles along 1,500 miles of the southern coastline. Approximately one-fourth of this bear country is National Forest land.

Reports by hunters, Government field men, and others indicate that there is a numerous bear population over great sections of the range. Few Alaskans are bear hunters, especially as it is illegal to sell the pelts, while the number of outdoor workers distributed over this bear country, some of whom may be game butchers, is extremely small. Tracts of thousands of square miles in extent are practically uninhabited. Also the number of non-resident big game hunters is small, as few persons can afford the great expense involved. Each hunter is limited to a kill of two bears a season. Under these conditions the yearly kill is not large. The Alaska Game Commission states that the number of both brown and grizzly bear reported killed each year in the past four years averages 129 for the whole Territory. Even if unreported kills should double this figure the total is still so small that it is surely but a small fraction of the yearly birth rate. Some old timers believe that the brown bear has been increasing in the past ten years, or since the diminishing prospecting fewer and the completion of the construction of the two railroads has reduced the number of outdoor workers in the bear country.

The basic Alaska game law leaves ample leeway for the Secretary of Agriculture to meet changing conditions with additional regulations for brown bear protection and the protection afforded is adequate. Absolute sanctuary is provided by refuges totaling 8500 square miles; restricted hunting as to seasons and bag limit is in effect throughout the entire range for non-resident hunters, and on the major portion of the range for residents; commercial hunting is not permitted.

Admiralty Island is undoubtedly one of the best bear sections, and in order to maintain a good bear population there for both hunters and wild life enthusiasts the Forest Service and the Game Commission plan to institute at once a bear management plan for the island, with the kill limited to the estimated increase and coordinated with the use of the island for other purposes, especially the growing of timber crops. This should meet the wishes of all interested parties except those few extremists who are against any killing of game animals and who refuse to give any consideration whatever to the need for developing the natural resource to further the growth and prosperity of the Territory.

The annual kill on Admiralty is without doubt still well below the annual increase, but as hunting has been increasing here for the past three or four years it is advisable to start the game management plan now rather than to delay and possibly face a depletion problem. A bear census of this island is to be made this summer as a preliminary step to the preparation of the plan.

The brown bear is a real problem to the Forest officer working on the range of this animal. Hunters are on the lookout for bear, but the Forest officer must give at least a part of his attention to his work as he goes through the woods and his gun must often be carried on his back to have his hands free for other things. or, if using a compass, he cannot carry a gun. He doesn't know at what minute he is going to jump a bear at 25 feet or less, and the dense brush makes the quick and effective use of a gun difficult even if the gun is right at hand. Moreover, there are a great many men who, though excellent woodsmen, haven't the peculiar qualities of a big game hunter and those are the qualities needed in this case. A man

might work in the brown bear country for many years and not meet a situation that, beyond all question of a doubt, necessitated the killing of a bear to save his own life, but it may come up at any time. In any event if his work keeps him in the bear country for extended periods he is certain to have a number of what he considers are pretty close calls.

The charge that the Forest Service field personnel wantonly kill bear is unfounded. The total number killed by Forest officers in the past ten years is only 22, of both brown and grizzlies.

Some killing has been done by Forest officers in self-defense. Ordinarily the brown bear will not molest a man, although he usually shows little fear, but apparently some out-laws exist among them. Many persons believe those vicious ones that attack without cause have previously been wounded by a hunter. Any brown bear is apt to be dangerous if startled by a short-range meeting with men, or if a cub is thought to be endangered. Their intelligence, strength, courage, and vitality make them a worthy antagonist for any big game hunter, even those with African experience. They are hard to kill and once wounded become extremely vicious; therefore unless the hunter is prepared to see the thing through to a finish he would do well not to start a fight. Most of the men who have been killed or mauled wounded the bear and then could not get him down or hold him down because of a light gun or lack of skill in using a gun under such unnerving conditions.

NATIONAL RESTOCKING IN THE SOUTHWEST

Foremost among the problems that have preplexed foresters of the Southwest is the national restocking of ponderosa pine. Ten years ago the Forest Service saw itself in the position of having logged thousands of acres of pine timber without having obtained the natural restocking necessary to maintain continuous production. Approved silvicultural practice had been applied without satisfactory results. Remedies had been offered by research but the facts were not complete and field demonstrations were lacking. Silviculture was further complicated by the universal practice of grazing live stock in the forests. The last few years have added much to the store of information, and where this information has been applied in administrative practice increasing proof of its correctness has been furnished. During the past year this trend has advanced into the stage of actual accomplishment. Where administrative practice has been in accordance with the silvicultural and protective measures advocated by research, cut-over areas are restocking. The pine forests of Arizona and New Mexico may now be logged with assurance that they will restock and that their productiveness can be maintained perpetually.

Successful husbanding of timber resources on a plan that will support a continuous lumber industry and supply public demands for wood products calls for definite knowledge of the growth capacity of forests. When the virgin timber stands have been cut over under approved forestry practice, how fast will the remaining young trees grow to commercial size, how many will die, and what will be the net yield available for future harvests in 40, 50, or 60 years? In an endeavor to answer these questions many sample plots, aggregating about 2,000 acres were established in 1909 and subsequent years. Diameters of all and heights of representative trees have been measured at 5 year intervals. Compilations completed during the past year give the rate of diameter growth, net volume growth per acre, mortality, and other data for plots aggregating 1163 acres on the Coconino and Tusayan National Forests, during 15 or 20 year intervals. Out of a total of 19,945 trees, 1,677 died due to various causes, the most important being wind, lightning, mistletoe, bark-beetles, and suppression. Diameter growth has proceeded at a rate averaging about 1.5 inches in 10 years. Net volume growth, after deducting losses is, on typical areas, between 80 and 90 board feet per acre. This means that in 50 years after the first cut a second crop of from 4,000 to 4,500 board feet can be harvested.

Recent economic trends in the lumber industry point to the need for greater efficiency in growing as well as in manufacturing and distributing wood products. Of a total area of 7 million acres of timberland in Arizona and New Mexico, probably not more than half, or 3.5 million acres, is so located that the timber can be economically marketed within the next 50 years. It would seem advisable to concentrate silvicultural efforts on the most accessible and most productive lands rather than treat all forest lands indiscriminately. The less favorably situated or productively inferior lands should for the present be handled primarily with reference to grazing, watershed, and recreational values, at the same time keeping in mind possible future timber values. - Annual Report of the Southwestern Forest and Range Exp. Sta.

"THE DAY OF THE CATTLEMAN"

A Review by R. R. Hill, Washington

The impression is quite general that Texas was the cradle of the range cattle business and that from the Panhandle poured countless herds of cattle that stocked the plains and mountain ranges of the North and West. The fact that the real pioneer in the range business of the West -- as distinct from the Southwest -- came from east of the Missouri River and that from the same source flowed powerful and, at some stages, dominant currents in the development of the western ranges has been quite generally overlooked. This phase of the development of the West has been very well described by Ernest Staples Osgood in a book entitled "The Day of the Cattleman," University of Minnesota Press. This writer evidently was very painstaking in selecting his material, as evidenced by many footnotes referring to official records of cattle associations, reports of territorial governors, the Commissioner of the General Land Office, the Secretary of the Interior, and current newspapers, personal correspondence of prominent men, congressional records, State documents, and other historical records. The book covers the general development of the cattle industry in the West, but it stresses the life-cycle of the range business in Wyoming and Montana as typifying the history of the industry generally throughout the West. With the discrimination of a historian he picks out the important forces that gave birth to the industry, those that impelled it forward to the peak of its ascendancy, and those that precipitated its decline as an open range enterprise and caused it to merge with competing phases of agriculture in a more stable community. One accustomed to thinking of the sheepman as an integral part of the livestock movement gains practically no information regarding the part which the sheepman played in the great drama of the western range. This omission of course, is to be expected in a volume dealing with the cattleman.

In 1830 the western edge of settlement in the United States was at Independence, Missouri. Beyond the Missouri lay what Major Stephen Long, who in 1819 explored along the Platte to its source and the headwaters of the Arkansas and Red Rivers, called the "Great American Desert" and which he declared could not be utilized by Whites but must remain the land of the Indians. During the thirties the Federal Government located eastern tribes west of the Missouri from the Mexican boundary north as far as the present site of Kansas City, in what was expected would be their permanent home.

The cattleman was not a forerunner of development in the western range country. The real pioneer was the fur-trader, who as early as 1832 pushed his way up the Missouri and Platte and over the Oregon trail into Oregon "the richest fur country of all." The fur-trader was followed by those who came to supply the necessities of the trail blazers; by Missions which developed farming among the Indians in western and central Oregon. This vanguard attracted homeseekers from Missouri, who settled in Oregon in 1843 and the Mormons who moved into Utah, "The Promised Land," in 1846.

Cattle first appeared at the trading posts along the trails to replace foot-sore and fatigued oxen dragging the prairie schooners and to supply meat for the immigrants.

This was the situation when in 1848 the discovery of gold in California "set the whole world flocking westward". With the rush of gold seekers went a greatly increased number of traders and freighters with many cattle to furnish motive power and meat for the rapidly growing population. At the trading posts along the main immigrant trails herds of cattle increased and spread out over the adjacent open range and thus the range cattle industry had its beginning.

By edict of the Mormons in 1857 Gentiles were ordered out of Utah and many settlers were forced to take their cattle to other States, some to California and many to western Montana. This served to scatter the livestock enterprise. The discovery of gold in 1858 stimulated the development of agriculture including stockraising in the eastern foothills of the Rockies. It was from this development in southern Colorado that first contact was made between the northern development ranges and the more southern stock-growing areas when Mexicans who had settled along the upper Rio Grande and raised cattle on range adjacent to irrigated crop land drove cattle into Colorado to sell.

Stock raising in Texas had already developed into an important industry and a shipment was made from Texas to Illinois as early as 1857, but it was not until the close of the Civil War that the first considerable movement of cattle occurred from Texas into the territories to the north. In 1866 longhorns were driven from Texas across the southeast corner of Indian Territory, through Arkansas, across the Ozarks in southern Missouri to Sedalia for shipment over the Missouri Pacific Railway. Difficulties with Indians, rough timbered country in the Ozarks, and complaints of settlers who were pushing the frontier westward in Kansas forced the Texas cattlemen to shift their trails farther west; the famous Chisholm trail ending at Abilene, Kansas, was the route followed by a drive of 35,000 to 75,000 head in 1867; finally the Panhandle of Texas and the eastern third of Colorado became the corridor to the north where the demand for cattle to stock the vast areas of open free range was greatly stimulating the shipment of cattle from Texas and from the Central States.

(To be continued in May 9 issue)

LIVE OAKS OF KNOWN AGE

By Gus Lentz, Southern For. Exp. Sta.

There seems to be a concerted movement among tree lovers and naturalists to overestimate the age of the large live oaks found in our Southern States. In the December, 1931, issue of "American Forests" and in the March 28, 1932, issue of the "Service Bulletin", ages upwards of 1200 years were assigned to majestic trees with diameters of from four to seven feet. Probably some of these patriarchs have reached a ripe old age but, as Mattoon pointed out, the exaggerated ages are highly improbable. Many of the trees to which these ages are assigned were planted on plantations of Colonial days. With all the speculation, it may be of interest to mention the history connected with one of the most interesting rows of live oaks extant.

In 1783 Pierre St. Denis de la Ronde planted a double row of live oaks along the road-way from his Versailles plantation home to the Mississippi River front, a distance of about 1800 feet. Seventy-six trees remain of the double row. Several of these trees are easily five feet in diameter, are over 100 feet high with 150 feet crown spread, and they rival many of the oft photographed and mentioned trees in other parts of the South. This group of trees lies five miles down the river from New Orleans and is generally known as the Packenham Oaks. These trees will be 150 years old next year. It is almost impossible to determine any annual rings on the stumps of live oaks, and it is easy to see how nearly any age can be obtained

by a stump inspection. In view of the reliable data at hand, one is tempted to question the accuracy of these supposed ring counts. Our Southern Cypress may often reach the 10th century mark but the Live Oak can hardly trace its age for more than two or three centuries. The Live Oaks of the South cannot challenge the record of California's Giant Sequoias.

NATIONAL FOREST TIMBER UNDER MANAGEMENT

By Howard Hopkins, Washington

Have you ever attempted to explain the importance and value of the National Forest timber management plans to representatives of the public and been on the point of having them grasp the size and the importance of the timber management job when someone in the front row popped the question, "How much National Forest timber is now under definite management plans?"

All the wealth of information on the timber, growth, etc. of the unit or forest at hand appears to hold no answer to the question and as you waver between trying to ignore or evade the query, and cannot even think where you could find the answer, would it not be a grand and glorious feeling if you could say in reply. "There were on January 1, 1932, 135 approved management plans in effect which included 96,025,764 M. B. M. of National Forest timber covering 21 per cent of the estimated total amount of sawtimber in the National Forests of the United States. This amount is exclusive of the timber handled under approved policy statements in effect January 1, 1932, which cover an additional 61 per cent of the total merchantable timber of the National Forests of the United States, or 286,462,688 M. B. M. The approved management plans and policy statements together cover a total of 382,488,452 M. B. M. of timber or an equivalent of 82 per cent of the total sawtimber stand of the National Forests of the United States, as based on the 1926 timber estimate." (The data in the quoted statement are based on an inventory made of all approved timber Management plans and approved timber policy statements in effect January 1, 1932.)

YE EDITOR DISCOVERS

In line with the economy drives being made in all fields of Government work the drive to reduce cost of printing has resulted in a decision by the Public Printer that there will be no carry-over of printing charges from the fiscal year 1932 to the fiscal year 1933. For the purpose of keeping the Government Printing Office employed at the close of the fiscal year, there has grown up a practice of permitting a carry-over of charges for work on hand at the end of the year. The sudden decision to eliminate carry-over for the present fiscal year resulted in an automatic decrease in the funds available to the Forest Service for the fiscal year 1932 of \$28,655, or 34 per cent. As a result, the Branch of Public Relations in the Washington office finds itself in possession of approximately \$25,000 worth of printing work and a printing allotment practically exhausted. Furthermore, there is little comfort in the fact that the new fiscal year with its allotments is not far away, for we have received warning that drastic cuts in the allotments for the fiscal year 1933 are a certainty.

Economy and curtailment are twin themes which seem to creep into every conversation about the office these days. Certainly the promised reduction in printing funds is going to require great economy and curtailment in the publication work. Just how much curtailment is going to be necessary will not, of course, be apparent until the new allotments are received, but it is not too early to begin practicing economy in the use of forms and publications. We can safely predict the need of making one publication do the work of two by judicious distribution. It has been suggested by one optimist that the financial stringency may have the effect of decreasing the number of changes in standard forms. The printing of administrative job work absorbs almost 45 per cent of the printing allotment. Obviously, administrative job printing is certain to receive critical examination by the economy ax wielder.

Led by Governors J. E. Erickson and C. Ben Ross, more than 3,000 representative citizens of Montana and Idaho have signed up as volunteer fire wardens to help cope with the forest fire situation this year. Governor Erickson, in enlisting as a volunteer fire warden, likened the group to the old-time vigilante committees of the West.

Fire wardens' appointments, carrying authority to make arrests, will be forwarded to those who have enlisted as soon as possible by the State Foresters of Montana and Idaho. Forest officers in Region 1 were active in signing up the volunteers, and R-1 has done a notable piece of work in putting this plan into effect.

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On April 16 an administration "Omnibus Bill" designed to gather up a large number of suggested measures for reduction of Federal expenditures was made public. The bill covers an entire page of a newspaper and is impossible to summarize. Reorganization by major purpose of activities is treated at length. The President is authorized by the bill to consolidate, redistribute, or curtail such activities as he may deem essential to good administration and to eliminate such bureaus, offices, or agencies as are not of statutory origin. Executive orders under the provisions of the act are to be transmitted to Congress while in session and shall not become effective until the expiration of sixty days after such transmission. The President is, however, authorized and requested to proceed with consolidations of governmental activities under the head of public works, public health, personnel administration, merchant marine, conservation, education, and Mexican water and boundary commission. The provisions that executive orders shall not be effective until sixty days after transmission to Congress does not apply to the specific consolidations directed and requested. The committee of the House of Representatives dealing with such matters was (April 21) engaged in consideration of the Omnibus Bill.

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Appropriations for the National Park Service for the fiscal year 1933 after the ten per cent Senate cut was made are 14 per cent less than the appropriations available for the fiscal year 1932. The appropriations for the Forest Service for 1933 as passed by the House were 27 per cent less than the amount available for 1932 counting only classes of items comparable with those in the National Park Service bill. The Senate ten per cent cut policy has not yet been applied to the Department of Agriculture bill. While opinions vary, the possibility exists that the Agricultural bill will be recalled from its advanced legislative status and subjected to some action corresponding to the ten per cent Senate reduction being made in other bills. No one can foresee what will happen. Something like a wave of protest is rising against what some Representatives have called a "hysteria" of economy.

On April 16 a whole advertising page in the Washington Post was devoted to a reproduction of an editorial from the magazine "Sales Management." This editorial deplored the prevailing domination of what ought to be economic thought by campaigns in favor of selfish interests. The necessity for recognizing the greatness of the crisis through which the country is passing was stressed. The imperative need for more attention to realistic consideration of internal economies was emphasized and some very clear-headed questions were asked which are at present very much obscured by all the publicity for tax revision, Federal pay cuts, etc. The curious habit of treating capital investments by the Federal Government as though they were current operating charges was challenged. If occasional utterances of this kind should develop into anything which could be called a trend of opinion, current publicity would doubtless give much less attention to economic salvation for the nation by means of reduction in Federal expenditures and salaries.

WHAT IS A "TOWN"?

By H. J. Andrews, Pacific Northwest For. Exp. Sta.

I have noted the use of the word "town" in several recent working plans and progress reports issued by the Forest Service. Although I think I know what is meant by the word in each case, I am not always sure, and wonder if other people might not be confused, since the word "town" means different things to different people. It may mean Land Office township, political township as found in the Lake States, political subdivision as found in New England, or a village or city. In the Lake States a political township may embrace one or more Land Office townships or even fractions of Land Office townships. It would seem wise to use the word "township" when referring to a Land Office township, to use the term "political township" when referring to such a political subdivision, and to use the word "town" only when referring to the political subdivision of this name as found in New England.

FORESTRY GRADUATES FEEL THE DEPRESSION

Failing to find jobs upon graduating from college, Dick Kiebertz and Allen Cox, both of Seattle, Washington, have organized under the firm name of Cox and Kiebertz to enter the dog-washing business on a large scale. They charge a flat rate of 50 cents except on St. Bernards and Great Danes, which are 75 cents. Vicious dogs are \$1 flat. Both young men hold B. S. degrees from the College of Forestry at the University of Washington, and Cox has a master's degree also. - Clipped

COPIES OF THE DEPARTMENT CIRCULAR 379 WANTED

The recent requests for Department Circular 379, "The Use of Salt in Range Management" by W. R. Chapline and M. W. Talbot, have exhausted the supply in the Washington office. It will be appreciated if you will send any copies of this circular you do not need to the Division of Range Research, Forest Service, Washington, D. C.

TWENTY STRIPES THE PENALTY FOR FIRING THE WOODS

The first Pennsylvania forest fire law was promulgated in 1676 by the Duke of York, brother of King Charles II of England, who had granted his royal brother all the New Netherlands. The penalty for kindling fire in the woods and permitting it to escape to cultivated land was to pay all damage plus one half more as a fine. If the guilty person could not pay he was liable to receive "not exceeding twenty stripes," in other words, be publicly whipped.

In 1683, following the grant of Pennsylvania to William Penn, the next forest protection law was given. Whoever set on fire woods or marshes was required to make good all the damages. - Pa. Dept. of Forests and Waters.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Roosevelt

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THE WAY OF A RANGE COW

By J. N. Langworthy, Shoshone

You have doubtless all seen copies of Russell's masterpiece, "The Last of Ten Thousand." The cow is poor, she is weak, she is making her last stand, she and her rough-haired little calf.

The wolves which have her cornered are licking their jaws in anticipation.

Russell put horns on the cow. The muleys and dehorned cattle were all dead. It takes the heart out of a cow to dehorn her. The best range cattle the world ever saw had horns. I am referring to the old long horns of Texas. They had nerve, great rustling ability, handled nicely and were good mothers. These are qualities which a range cow should have. They are qualities which are found today in many of our well-bred range herds.

I have seen cows from farm bunches, which would refuse to mother their calves. Such cows should never be turned on the range. They should be held in a pasture where they may receive the attention they are accustomed to. A range cow and a barnyard cow are two different animals. The barnyard cow should be kept on the farm, where she belongs.

A typical western range herd puts in most of its time on grass. For generations these cattle have used the same range. A regular system has been worked out. I have in mind the mountain country where I have spent most of my time, with ranches and winter ranges bordering a National Forest.

As soon as the snow is off the mountain ranges the old cows get restless. They wish to be on the way to a quiet mountain valley where they have always put in their summers. A range cow, as a rule, will be inclined to return to the same locality, year after year. Over the trail she knows so well, she and her husky young calf make the journey to the mountains where the lush grass and the cool waters soon cause their coats to shine and their frames to round out. All summer they breathe the perfumed air of the mountain meadows, eat their fill, and lie down among the flowers, putting on the big fat. When the frosty nights of fall arrive the calf is half as tall as its mother and is no longer dependent upon her milk. An occasional storm whitens the landscape. The flowers have disappeared, the grass has become frosted and lost its relish and gradually the drift to the winter range begins. Finally, the old cow trails down into the rough breaks of the winter range with a big weaner tagging at her heels. She has done her part. - From R-2 Bulletin

A CATTLE COUNT ON THE HARNEY IN 1915

By D. A. Shoemaker, R. 3

Ranger Jim Robin's call upon Pete, as related in Episode 4 of "Uncle Sam's Forest Rangers," undoubtedly was based upon an actual experience of a Ranger. It reminds me of a very similar experience that I had on the Harney Forest in about 1915, although the position of two of the principals in the case was reversed. Louis Knowles was Ranger "Jim" and I, working under him as a Guard, was "Jerry." Louis had been ordered off a certain rancher's place and told to stay off. That rancher didn't have much of a reputation except for being downright ornery. His 40-odd years as a bachelor had endeared him to no one except his Collie dog.

It came time to count the rancher's cattle and I was detailed to the job. With full knowledge of his reputation, including at least one notch on his gun barrel, and of his instructions to the Ranger, I rode up to his cabin-yard gate - lustily whistling as an outlet for cold chills - and nonchalantly, although I could have used a Murad, dismounted and entered the gate. Said rancher was standing in the door of his cabin and it was not necessary to look twice to see that he was in full dress - that 45 Colt looked like a cannon. I was aware of a muffled "Sic-'em" command and was almost immediately greeted by a growling, snarling Collie. My heavy boots, chaps, gloves, and leather vest gave me an advantage over the dog which I soon capitalized - much to my surprise - to the extent of friendly relations with the canine. Courage renewed, I proceeded toward the cabin. Its occupant's half-slouched posture was deceptive of his actual alertness, the latter emphasized by the deliberate resting of his hand on the butt of the old 45. The dog was running around me in playful circles, barking, and wagging his tail in an unfeigned friendly manner. The actions of his dog seemed to register deeply with the bowlegged object of my venture. When within a few feet of the cabin, I introduced myself. Although my proffered handshake was ignored, I was - again to my surprise but not entirely to my liking - invited into the cabin.

The time seemed ripe, so I stated my mission. I was told that if I would wrangle the horses, the owner would help me round-up his pasture and count his cattle. To make a long story short, I left that ranch after 3 or 4 hours with the record of a very satisfactory cattle count in my notebook and an invitation to stay all night flirting for registration in my more or less befuddled dome.

Louis, of course, wanted to know how I did it. I told him about the Collie.

FIRE DAMAGE IN THE NORTHERN ROCKY MOUNTAIN REGION

A study of fire-killed white pine lumber in northern Idaho by the Northern Rocky Mountain Forest Experiment Station to determine the depreciation in the quality and quantity of the lumber showed that if the timber could not be logged and manufactured into lumber within two years after it had been fire damaged, it could not be salvaged at a profit. The one-year-old fire-damaged white pine logs lost 10 per cent and the two-year old fire damaged logs lost 16 per cent in their lumber sale value.

As a part of a study of log bucking in relation to lumber grades, fire-damaged ponderosa pine butt logs were compared on a value basis with sound butt logs of a similar diameter, log grade, and taper. From these data the loss from fire damage by tree d.b.h. classes was computed and applied to an average of two logging areas on the Flathead Indian Reservation. This stand contained nearly 6 fire-damaged trees per acre, each suffering a loss of slightly over \$1.80 lumber selling value (using 1928 figures). The average selling value

loss per acre is then computed to be \$10.78 per acre. This is not a theoretical loss but a measurable loss caused by recurring fires during the past century or so. The importance and seriousness of this loss can best be illustrated by computing the loss sustained by a given logging unit.

The Camas logging unit on the Flathead Indian Reservation contains approximately 120 million feet of timber on about 12,000 acres. It is assumed that depreciation from fires during the past century or so has been the same on this area as on the Revais and Valley Creek unit, where the foregoing fire-damaged stand figures were obtained. According to Forest Service and Timber Protective Association figures, five cents per acre over a long period will be ample for fire protection, or a cost of \$600 per year for this area. The average yearly depreciation of this timber during the past century or so has been at the rate of \$10.78 per acre or \$129,360 for an assumed period of 120 years. This period is used because available growth figures on residual stands indicate that cut-over areas will, no doubt, produce a volume equal to the yield of our present virgin stands in 120 years if given proper fire protection. The average yearly depreciation of this timber during a 120-year period is then \$129,360 divided by 120 or \$1,078 per year. Thus, the annual net amount that could have been saved by protection would be \$478. The \$478 illustrates one of the financial aspects in the protection of ponderosa pine cut-over areas well stocked with advance growth. - Annual Report of the Northern Rocky Mountain For. Exp. Sta.

SOME SUGGESTIONS FOR SAVING CLERKS' TIME

By M. H. Wolff, R. 1

We all want to reduce wherever possible the small incidental "time robbers" in our clerical tasks. Even though each individual one is small, their aggregate is very appreciable. Do we too often proceed in ways we have become accustomed to, long after the need for following the practice has passed, or because we do not constantly realize that the "means" are only justified by the "end"?

Some of the clerical work involved in our special use business is an instance. What are the possibilities of time saving in that? A special use permit is in effect a contract between the permittee and the Forest Service. No general reason is known why one contract (permit) cannot ordinarily cover all the privileges allowed to any individual user. A case designation may read:

L Uses-Coconino
John Jones
Pasture (Meadow Creek)
Pasture (Willow Creek)
Hay Cutting (Lakes Adm. Site)
Cabin (Three Forks)

One folder, one case, would result instead of four. For statistical purposes the case would be entered twice under one class, and once under each of the other two classes. The area description on the face of the permit could be expanded to cover properly each of the four individual tracts involved.

But sometimes it may be cumbersome to cover two vastly different kinds of uses in the same contract, as for instance a resort and an irrigation reservoir. Even so, could not two or more uses of the same class be always included in the same permit? No reason ever exists why two separate tracts used similarly should not be covered in the one permit.

And what purpose is served by the date in the case designation. Aren't any possible

benefits more than offset by the need of the clerk or someone else frequently looking up the date? In periodically recurring contracts with the same Forest user, as for instance a timber sale purchaser, the advantage exists, but such advantage in a special use case would be very unusual, certainly never if there is only one privilege to an individual permittee, of any one class. If there are two or more concurrently running uses of the same class by the one permittee, how about adding a descriptive name after the "class" part of the designation as has been done in the example above given, and omitting the date?

A difficulty foreseen in combining two or more privileges under one contract is that they may have been allowed at different times. The easiest immediate way to handle the matter is, of course, to issue a new permit for each later use. But how about the carrying of the extra additional case and folder for a period of years? Would not the saving in that more than justify the effort in modifying the existing contract (permit) to include the new use, or if necessary recall the existing permit and issue an entirely new all inclusive one?

And in that connection: When a change, often minor, is necessary in an existing permit, do we always accomplish it by a simple letter of amendment, or do we too often cancel the original permit and issue an entirely new one?

And then the special use cards: What purpose do they serve? Are they mostly a hang-over from the days when special use annual fees were called for throughout the year, and the cards thus served as ticklers? Do they sufficiently facilitate the preparation of the annual statistical report to justify the expense of keeping them up? Do they serve sufficiently to keep a complete record of all special uses granted from the year 1, even after cases are closed and folders destroyed, to warrant their continuation? Are they so specially a convenience for ready reference for other purposes superior to the folders themselves.

If you can't make the change yourself because of outstanding instructions, or if in doubt as to unforeseen objections, why not take it up with your superior?

These are only some examples in only one line of our business. Unquestionably there are many more ideas in this same line, and very surely many, many, many, in other lines of business.

Let us always bear in mind the thought that very many possibilities of this kind exist, they are all around us if we'll only open our eyes and see; let us reason them out, check them with our superior officers to see that no unforeseen objections exist; let us act on them; and let us tell all our fellows about them.

"THE DAY OF THE CATTLEMAN"

A Review by R. R. Hill, Washington
(Cont'd. from May 2 issue)

Several influences were focusing general attention upon the Indian problem in the High Plains region. The large mining population in the mountains and ranchers in the foothills resulted in increased traffic across the plains, the establishment of army posts, and the building of the Union Pacific across Nebraska and the Kansas Pacific through Kansas, which, in turn, greatly stimulated the settlement of these two States. These developments could not occur without challenging the rights of the Indians to occupy this "Great American Desert."

Eastern friends of the Indians desired to reserve much of the plains country west of Iowa permanently for the Indians. The latter were able to fight the small garrisons of Federal soldiers to a standstill during the period immediately following the Civil War and

in 1868 a treaty was concluded which recognized the full control of the Indians over north-eastern Wyoming and eastern Montana. Much of this area was outside the reservations and formed the hunting grounds of the Indians, creating a vast barrier to the expansion of the range cattle industry. Speculation over the mining possibilities in the Northern Rockies and the desire of the cattlemen to occupy the fine range country then held by the Indians and to have an outlet through this territory to markets kept the Indian question agitated. Frequent memorials were sent to Congress petitioning the restoration of the hunting grounds to settlement. In 1874 gold was discovered in the Black Hills and the rush of miners and freighters and traders to that section led to clashes with the Indians. The Custer Massacre in 1876 crystalized a demand which led to the placing of all Indians on reservations. The last big round-up of Indians occurred at Miles City in 1881, when 1600 Indians were shipped down the Yellowstone and placed on a Reservation in South Dakota. Cattlemen from western Montana and southern Wyoming rushed into the land vacated by the Indians; slaughtered the buffalo - in one vicinity 10,000 head were killed in the winter of 1879-80 for their hides - and replaced them with cattle that were soon to occupy nearly all available range lands. Thus the miner, soldier, and railroad-builder were the principal actors in this process which terminated the pioneer conditions along the old Oregon Trail and the domination by Indians over the High Plateaus ended with the close of the Seventies. In this vast region grass came to be called King. Reports of the vast opportunities to develop cattle ranches, of the great profits in a business in which a calf worth \$5 could be raised with little expense and sold for \$45 to \$60, spread throughout the East and into Europe. Capital flowed into this new country to establish new ranches and to stock them with cattle, chiefly from Texas though many came from the more crowded ranges of Colorado, the small ranches of western Montana, and many from the farming States of the Middle West. In 1883 it was estimated that 185,000 head were shipped from this section, and during the same year 260,000 head were trailed from Texas. From 1880-83 the number of cattle in Wyoming increased from 250,000 to 600,000.

Many Land and Cattle Companies were organized - twenty such companies capitalized at 12 million dollars were incorporated in Wyoming within a short period. Exports of live cattle, chiefly to Europe, increased from 27,530 in 1870 to 136,720 in 1879. During the same period refrigeration developed and dressed beef shipped to England competed seriously with meat produced by local farmers.

As demand for range became keen, conservative stockmen acquired possession of key tracts of land which controlled the use of open range; others were forced to occupy less desirable, less accessible range. In a very short while all available range was occupied and overstocking became the rule. The general depression in the early Eighties caused the beef prices to drop from \$4.25 per hundred weight in 1883 to \$1 in 1887. Very severe winters in different sections of the West in 1885-6 and in 1886-7 caused ruinous losses of livestock. This, together with the extremely low prices, caused many big outfits to disappear within a few months and forced the range cattle business to liquidate. In Wyoming the number of range cattle decreased from nine million in 1886 to three million in 1895.

The early Eighties marked the climax of the range livestock business. The depression and the severe winter losses brought convincing evidence that the basis of the industry was not secure and could not continue to hold the confidence of capital. Unregulated range and lack of reserve winter feed were fatal handicaps. It became clearly necessary for stockmen to raise enough hay to insure winter feed and in some way to stabilize control over the summer range. Every subterfuge that could be worked under the various Homestead Acts was invoked to acquire title to hay-producing lands and tracts which controlled water or, in other ways, the use of public domain. To extend this control many illegal fences were constructed on public lands and alternate sections of railroad lands were leased and the ex-

terior lines fenced with 8-inch gaps at the corners to avoid illegal fencing of adjacent public lands. Complaints of settlers led to suits which terminated in decisions adverse to the cattlemen and their efforts to control public lands by fencing were frustrated. They were unable to keep the settler out and the period from 1890 to 1920 was marked by a great influx of dry-land farmers who attempted to occupy the marginal crop land abandoned by the large cattlemen as a part of the open range and who in turn became the small cattlemen.

Another force which contributed to the decline of the open range cattle business was the competition of sheep. In the early Seventies' sheep from California, Utah and Oregon arrived on the northern ranges. In Montana the number of sheep exceeded cattle as early as 1881 and in western Wyoming by 1884.

The clash between the surviving cattle companies and the small ranchmen and grangers constitutes the final chapter in the story of the cattle range industry. The land actually suitable for cultivation represented such a small proportion of the range country that the cattlemen resented this invasion of what they considered their domain by right of prior use and adaptation. The contest between cattle "barons" on the one hand and grangers, rustlers, and small cattlemen on the other reached the stage of organized hostilities in the famous Johnson Country War in northern Wyoming in April, 1892. There some twenty-five Texas cowhands accompanied by some prominent cattlemen besieged and killed two alleged rustlers. Immediately some 200 settlers gathered to avenge the death of their neighbors, but further bloodshed was averted by the dispatch of federal troops to the scene. This incident united public sentiment against the dominance of the large cattleman and marked the end of his power in Wyoming. In Montana the cattle "king" was dethroned without such violence, but his place was none the less effectively taken by small ranchers. In 1897 the only exclusive range lands remaining were in the northeast corner of the State. There the cattleman lingered where a few years earlier the harried remnants of the great northern buffalo herds were last seen.

Ranches where small cattlemen maintain themselves by combining winter-feeding and utilization of part of the range for summer pasture; dry-land farms, not a few deserted, and scattered settlements where irrigation has made agriculture safe and permanent - these have succeeded the great range outfits of other days.

YE EDITOR DISCOVERS

A case of an incendiary being tracked to the fire line is reported by the Supervisor of the Shenandoah Forest. The substance of his report is as follows:

On April 16 a fire which was threatening National Forest land was reported on private land near Sparkling Springs. Investigation of the origin of the fire disclosed that it had started from a moonshine still which had been operated during that day or the previous night. The still, as well as the mash and barrels, had been removed from the area. Immediate action being deemed necessary if the culprit was to be caught, it was decided to use bloodhounds. The dogs followed a trail from the still site in a roundabout way to the crew of fire fighters on the line and recognized Tom Crawford, one of the crew. A confession was secured from Crawford and he was arrested. On April 22, Crawford was tried and received a minimum fine of \$10 and costs for allowing the fire to escape. In addition the judge imposed a sentence of one month in jail and \$50 on the prohibition charge. Crawford will therefore spend about 4½ months in jail.

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The relatively abundant moisture which has fallen throughout most of the West during

the winter and spring has its drawbacks as well as its advantages. Reports are coming in, from Regions 6 and 1 particularly, of bridges, both large and small, swept away; heavy slides; and damage to roads, especially those of recent construction. The moisture is gratefully received and will be even more appreciated if it continues to fall during the remainder of the spring and early summer, but replacement of bridges and emergency repairs on roads will impose heavy burdens on reduced funds.

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The establishment of an organization which will have as its objective the coordination of forest industries was recently announced by the National Lumber Manufacturers Association. This new organization, to be known as the American Forest Products Industries, is a federation of industries, both primary and secondary, the operations of which are based on the use of wood. Its dominating purpose will be to restore the economic vigor of those industries which has been impaired for at least a decade by wasteful competition, destructive taxation, and encroachments of other industries in fields which its economists claim may most efficiently be served by the forest industries in the interest of national and individual economy.

The new organization, when consummated, will have, it is believed, the widest scope and the largest potential membership of all American trade associations. It is described as being the inevitable outcome of the economic forces which are compelling union of affiliated industries to plan far ahead, to avoid useless and destructive competition among themselves, and promote their common interests in external competition, scientific and industrial research, and commercial promotion.

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The annual meeting of the American Forestry Association, which is to be held at Baltimore, Maryland, May 26-27, will deal principally with the topic of Water. Such subjects as flood control, stream regulation, erosion, and adequate supplies of water for mankind's use and development will be discussed. Secretary Hyde will address the meeting on the subject "The Cost and Cure of Erosion."

"RACKET?" -- WAIT AWHILE

By H. C. Obye, Ochoco

After some 27 years of endeavor by the Forest Service to properly administer, with a view toward perpetual use, our National Forest resources it is entirely beyond my powers of conception as to why so many seemingly well-informed people are yet in the dark about what the Forest Service stands for or what Forestry employees do with their time.

Since my entrance into the Service I have never yet gone through a winter without being confronted with the inquiry "What do you fellows do in the winter time when there are no fires?" The first time the question was put up to me it sounded very strange indeed, and I was actually somewhat upset to think that the seeker of information had absolutely no idea what the Forest Service work consisted of besides handling the fires of the summer season. Now, I have grown to expect the same inquiry about every so often and really believe I'd think the people were losing interest altogether if such questions were not forthcoming.

Well, all that wasn't so bad, of course, providing the proverbial salt-shaker was available, but when I recently heard the Forest Service referred to as a "racket" and by a

person who was supposedly the possessor of an education, the shock was almost too great for the equilibrium. A couple of Murads were chewed up in an earnest attempt to explain the whys and wherefores of what we are actually doing to protect and develop the resources that belong to the public. Trust the breath wasn't wasted.

The Forest Service, even if considered from the semi-selfish standpoint of immediate returns, should be a most welcome institution in any community. A large per cent of the Forest officer's salary is spent in the locality where he works. Thousands of dollars are distributed among workers, mostly local men, each summer for protection and improvement work. This it seems should be good and sufficient reason for the public to interest themselves in what we are doing -- and how.

Perhaps a show-me trip to the Forest office some day in the fall or winter when all hands are busy on grazing plans, road construction, fire plans or any of the other 45 activities would serve to allay their fears of graft or corruption. Surely, once they saw and understood, they would not expect one or two men to attend to all the planning for and administration of a million-acre project. We think this Forestry business is handled in the most efficient manner known to man -- but as a "racket" its a flop. - From R-6 Bulletin

INSULATE THOSE CEILINGS

By Ray M. Kingsley, Helena

We have all noticed how comfortable the old pioneers' cabins were -- how cool they were in summer and how easily they heated in winter. Let us examine the construction of these cabins and learn why these facts are true. The usual construction was thick log walls, roof of two thicknesses of inch boards and from eight to eighteen inches of dirt on top. The building set on the ground without a foundation. In the language of the modern builder, it was insulated -- floors, walls and ceiling -- and hence cool in summer and warm in winter.

How about the usual one-story construction such as is used in our frame buildings at ranger stations? They usually have concrete foundations, double outer walls and floors with paper between and inner plastered walls. So far, excellent construction. But, how about the ceiling: Usually plastered and with the attic above all in one room with a roof above of sheeting and shingles. As a result, the summer's heat penetrates to the occupied rooms making them uncomfortably warm, and in winter the heat from the heating plant ascends through the plastered ceiling, heats the attic and is dissipated through the roof to all outdoors. Note how the snow melts off that part of the roof directly over the building but not on the projecting parts of the roof.

The remedy? Insulate not only the floors and side walls of the building, but the ceiling as well. Even a floor of matched lumber for the attic would help a lot and would not increase the cost of the structure more than \$50. Full insulation, with a double attic floor or the use of some of the various insulating materials now on the market, would, of course, be more in keeping with the other features of the building.

In these days of 200,000-acre districts, management plans for everything, work plans and diary analyses, it would seem that a ranger should be better employed than in cutting wood in the effort to heat the whole administrative site. Let us be as modern in our building codes as we are in our fire plans. - From R-1 Bulletin

COPIES OF DEPARTMENT BULLETIN 1061 WANTED

The Washington office supply of Department Bulletin 1061 "Longleaf Pine," by W. R. Mattoon, is exhausted. It will be appreciated if you will send any copies of this bulletin you do not need to the Division of Silvics, Forest Service, Washington, D. C.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES, WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Reuben R. Ransom

Vol XVI No. 20

Washington, D. C.

May 16, 1932

SECRETARY HYDE'S LETTER

April 2, 1932

Editor,
The Chicago Daily Tribune,
Chicago, Illinois.

Dear Sir:

On March 13 the Tribune printed a chart which purported to show that the expenditures of the United States Department of Agriculture had increased from \$30,000,000 in 1917 to nearly \$300,000,000 in 1931.

No explanation, no statement of items accompanied the chart. It created the impression that this increase was for agricultural purposes.

Because this impression is wholly false, and because it does an injustice to the cause of the American farmer, I am asking you to give equal publicity to the following facts:

\$174,000,000 of the 1931 expenditures went to the States as Federal aid in highway construction. The money served the general welfare and relieved unemployment.

\$50,000,000 went to farmers in drought areas as emergency relief loans. The Department of Agriculture did not ask for the money. It was no part of our regular program.

\$14,000,000 went to the States for experiment stations, extension services, and forest fire prevention. The Department of Agriculture did not spend it. We were merely the channel through which the money passed.

Deducting these sums leaves \$58,000,000 spent by the Department. This contrasts with the \$30,000,000 spent in 1917. (All other moneys were either paid to the States direct, or were emergency funds for which this Department made no request.)

But even this \$58,000,000 is not a fair statement of the expenditures for agricultural purposes.

\$4,000,000 in 1931 went to the Weather Bureau, including \$1,200,000 for commercial aviation -- only \$50,000 of the entire appropriation being directly for agriculture.

\$6,000,000 went for eradication of bovine tuberculosis -- a public health service fully as much as an agricultural service.

\$5,000,000 went for meat inspection -- another service primarily for public health.

\$1,600,000 was expended for enforcement of the Food and Drugs laws -- another health service.

\$15,000,000, in addition to payments to States for forest roads already counted, went to the Forest Service to conserve our national resources for all the people.

\$2,000,000 went to Biological Survey, principally for wild life conservation.

These items add up to \$33,600,000. Minor non-agricultural items bring the total well above \$35,000,000. That leaves, of the \$58,000,000, only \$23,000,000 that can properly be charged against the Department of Agriculture for strictly agricultural expenditures. Of the \$30,000,000 expended in 1917, about \$11,000,000 was for strictly agricultural purposes.

The increase in expenditures by the Department of Agriculture for agricultural purposes from 1917 to 1931 was, therefore, about \$12,000,000. Any other statement is unjust to agriculture.

Since 1917 Congress has enacted 24 laws to be administered by the Department of Agriculture. Here are 24 reasons why it costs more to run the Department now than in 1917. In spending money to enforce these laws, the Department merely obeys a mandate from Congress.

Is the Department justified, is it intelligent in spending \$17,000,000 for agricultural research, as it did in 1931? Agriculture has long thought so. Business and the general public must think so too if it will recall items like these:

Research on the southern cattle tick not only showed us how to control that disease-carrying insect, but demonstrated how yellow fever, malaria, typhus fever, African sleeping sickness, Rocky Mountain fever, and other maladies are transmitted.

Hog cholera losses have been reduced because the Department of Agriculture developed a preventive serum. That is of importance to one of Chicago's largest industries.

A calcium salt, once so rare it cost \$150 a pound, now may be had for 50 cents a pound because of work by the Department's chemists.

New vat dyes which permit the dye industry to meet competition from abroad, and to use cotton and artificial silk to better advantage, are in wide use, because the Department some years ago synthesized an entire new series of vat dye intermediates.

Cheap nitrogen from the air, of importance to our national defence as well as to agriculture, is in large part a reality because of research in this Department.

Instances might be multiplied which would convince you that our expenditures for agricultural purposes are thoroughly justified. This does not minimize the need for economy and for reduction of expenditures at this time. We have reduced our expenditures, so far as it lies in our power to do so. Our 1933 budget estimates for general bureau expenditures are \$7,457,714 less than the 1932 appropriations provided. The total budget estimate for 1933, including payments to States, road funds, is \$49,500,000 less than the 1932 appropriations. The Senate has added \$1,000,000 for Government participation in the Century of Progress at Chicago which is only incidentally agricultural.

We shall continue to cooperate in every possible way to reduce expenditures. The amount of savings which it is possible to make must depend upon Congress. We shall interpose no objection to any economy the Congress may make, we ask only that Congress and the public be truthfully informed.

Very truly yours,

(Signed) ARTHUR M. HYDE
Secretary.

MISREPRESENTATION

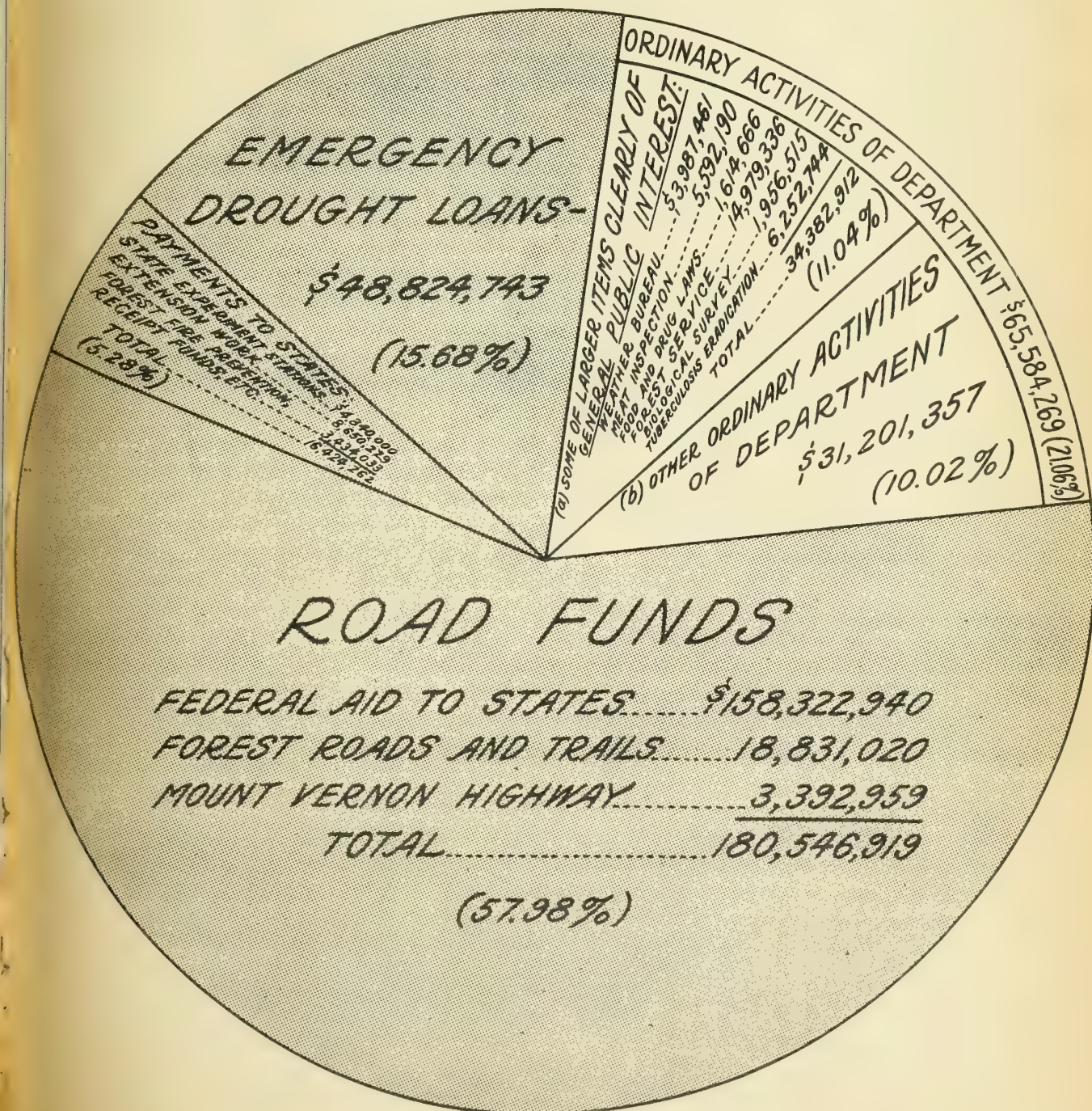
The Secretary's letter is one effort to correct in the minds of the reading and radio listening public the vicious, far-reaching campaign of misrepresentation and reflection on the integrity of the Departments and of Federal employees. Such misrepresentation is a very grave threat to public interest in that it seriously affects the attractiveness to high-grade men of public service as a career. - H. R. Kylie

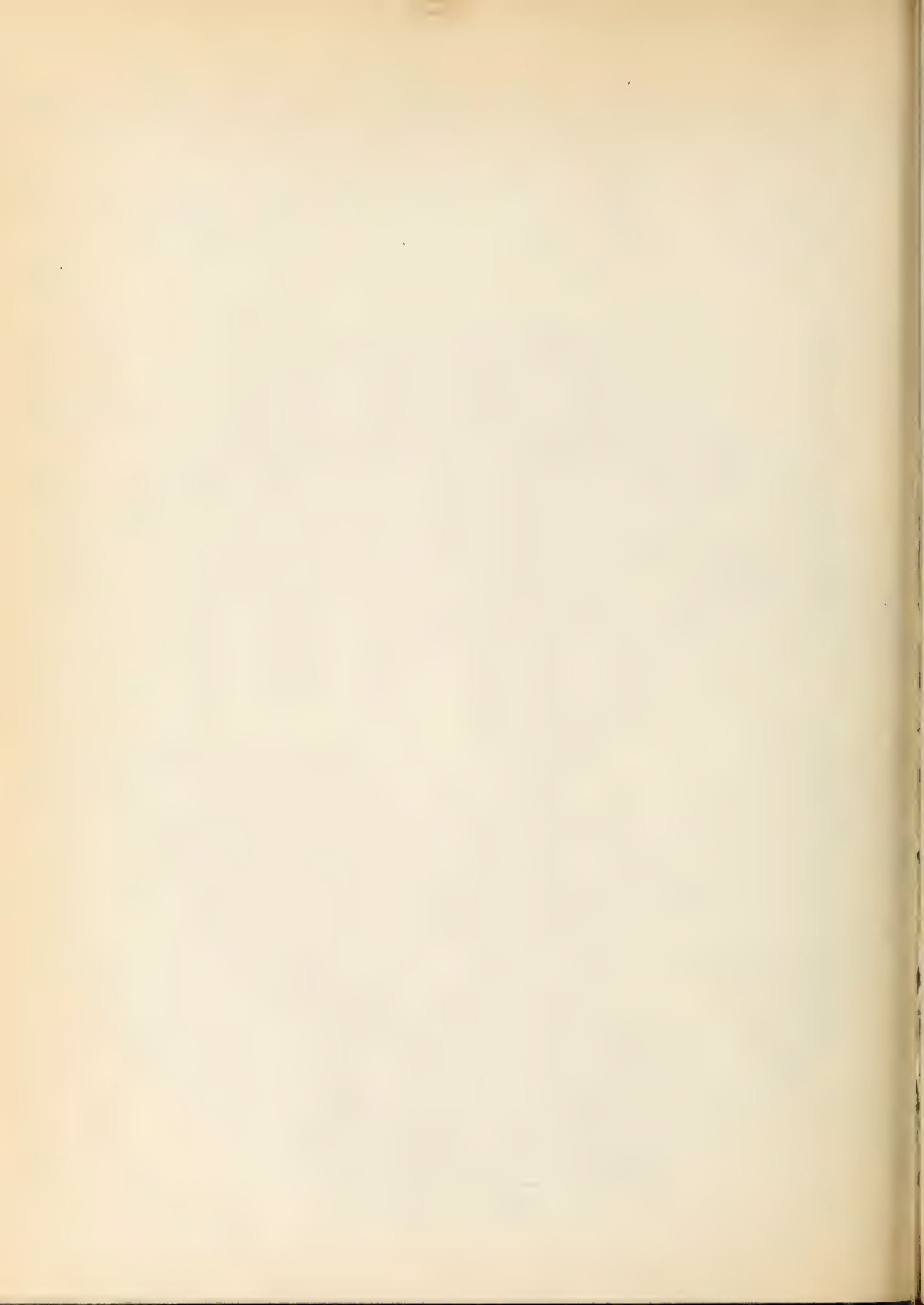
HART NO. 9-1931. CLASSIFICATION OF TOTAL EXPENDITURES CHARGED
 O DEPARTMENT OF AGRICULTURE, FISCAL YEAR 1931, (REF.: BUDGET
 TATEMENT NO. 2, VOLUME DATED 1933, PAGES A 32-A 47)

NET CASH WITHDRAWAL FROM THE TREASURY \$296,865,945

CHECKS OUTSTANDING JUNE 30, 1931 -----14,514,248

TOTAL----- 311,380,193





SECOND GROWTH DOUGLAS FIR FOLLOWS CESSATION OF INDIAN FIRES

By F. L. Moravets, Pacific Northwest For. Exp. Sta.

Whidby Island, once largely deforested by the Indians' repeated "light burning", is now well forested with second growth Douglas fir. It is a striking example of the ability of Douglas fir quickly to reclaim lands long scourged by fire, after the periodic burning ceased. This was noted by the author in the course of type mapping Island County, Washington, in connection with the Forest Survey of the Douglas Fir Region.

This island, the second largest in Continental United States, is approximately 110,000 acres in area. The greater portion of the islands is covered with even-aged stands of second growth Douglas fir, most of which range from 65 to 80 years in age. In practically all of these stands no evidence of previous occupation by old growth Douglas fir was to be found and apparently the areas had been deforested at one time.

This assumption was verified by questioning Charlie Snakelum, the oldest and probably the last survivor of the Indians who occupied the island before the white men came. Old Charlie, over 90 years of age, antedates the second growth stands, and still retaining full possession of his faculties, can plainly recall conditions on the island in his boyhood. Like many aborigines, he has a remarkable memory but, unlike others, he is quite garrulous.

Many of the Puget Sound Indians used the island for a hunting ground and it was also the location of an annual "potlatch" attended by many of the neighboring tribes. Deer were plentiful and large portions of the island were burned over annually to make better hunting. Charlie recalls the time when areas now forested were treeless grass plains. The white settlers located on the better soil from 1850 to 1860 and repeated history by gradually driving the Indians out, stopping the practice of light burning. A scattering stand of relict firs provided seed, and, with the strong prevailing winds disseminating the seed, the denuded areas were soon reclaimed.

Charlie pointed out one area of considerable size slashed by him for a white settler some fifty years ago, which was abandoned after a few years and now supports a dense stand of 40-year old fir. This same condition may be observed on many of the larger islands of Puget Sound, other parts of Washington, and in the Willamette Valley, Oregon.

Practically all of the forest area of these islands was found to be of low site, sites IV and V predominating; consequently, growth is slow, the stands densely stocked, and thinning a slow process. It is not uncommon to find 70-year old trees only four inches in diameter and forty feet high. Stump rot is common in the young stands and what mature trees are found are likely to be defective and wind-skaken. At present the principal use of these stands is fuel wood for lime kilns operating on some of the islands. The young stands can be utilized to some extent for piling.

BLOODHOUNDS LEAD TO THE APPREHENSION OF INCENDIARIES

By H. O. Stabler, R. 7

Region 7 has an unenviable record of man-caused fires, a goodly proportion of which are classed as of incendiary origin. After much discussion as to what the reaction of the public would be in the event bloodhounds were used in an attempt to identify fire trespassers, we began their use three or four years ago. From the first we found that our fears of raising adverse sentiment on the part of law-abiding people were groundless and, though we had had no noteworthy success in apprehending a trespasser, we were satisfied that the use of dogs had a deterrent effect. We finally gave serious consideration to the establishment of

a kennel, or kennels, of our own on a Forest or group of Forests having a bad incendiary problem, but we never quite decided that Service-owned dogs would be an entirely practical project. In the first place, there is the question of continuous care, and we could not be certain that we could properly train young dogs or keep their training up to the point where they would be useful when needed. Reliance has, therefore, been placed upon the hiring of dogs.

The past few months have brought some noteworthy successes in the use of bloodhounds. A recent case, that of a moonshiner who set a fire on land adjacent to the Shenandoah National Forest and was tracked by bloodhounds to the fire line, was reported in the May 9 issue of the Service Bulletin.

The Toccoa District of the Cherokee Forest now comes forward with what promises to be a successful dog case. No doubt you all know that freshly burned areas are for some reason attractive to wild turkeys, and not too lawful turkey hunters frequently follow the practice of producing a fresh burn. For a number of years a fire has occurred annually in the vicinity of a fire which started on April 7. Ranger Arthur Woody, who is himself a turkey hunter of parts and has made several successful on-the-wing shots with a 30-30, had suspected one or two persons of being responsible for this annual turkey fire. The hand of suspicion, however, had never pointed toward Ralph Wright, the alleged trespasser. A dog being available on the Forest he was taken to the scene of the fire, with the result that he back-tracked Wright a distance of 12 miles by a circuitous route to his home, into the house, and to his bedroom. At first Wright denied any knowledge of the fire, but upon being further questioned the following day he admitted his guilt, and, in the presence of witnesses, made an affidavit to that effect. On April 11 he was given a hearing before the U. S. Commissioner at Blairsville, Georgia, and was bound over to the next session of the U. S. Grand Jury under \$1,000 bond. In this case, the dog had to deal with a relatively cold trail, because Wright, by his own admission, left his home at 11:00 a. m. April 6, spent the night in the woods, started the fire about 10:00 a. m. April 7, and the dog did not take up the trail until 12:35 p. m. on April 7. The dimensions of foot tracks along the trail followed by the dog corresponded with the shoes found in Wright's bedroom. It is probable that a conviction in this case will be obtained.

Last winter the use of dogs in a fire trespass case on the Monongahela Forest contributed very materially to the confession in court of the alleged trespasser, who was sentenced to two years in Atlanta.

We believe thoroughly in the effective use of bloodhounds in fire trespass cases, and I believe that it will not be long before we will have a Service kennel or two.

A POST-GRAD COURSE

By A. E. Fivaz, Past President, Alumni Association, New York State College of Forestry

Infused with the ideals and theories of the profession at a forest school, the graduate forester frequently has difficulty in adjusting himself to face successfully the reality of economic forestry practice. Even a decade after graduation, the average forester still has not attained the correct economic outlook on forestry practice. The lack of this viewpoint is perhaps due not so much to ignorance of what is or is not economically practicable, but to impatience with the slow pace of sound forestry measures towards economic practicability. Whatever are the reasons for this viewpoint, the result of it is usually to widen the gap between the land owner and the practice of forestry. Therefore, in order that misunderstanding of viewpoints between the forester and the forest owner may not hinder the

extension of forestry practices where and when these become economically feasible, it is important that the forester see each step proposed both from his technical viewpoint and from the owner's economic viewpoint. No matter how fair minded the forester may be, this is a difficult thing to accomplish. It requires more than the willingness to see the owner's side, it practically necessitates the actual experiencing of that viewpoint.

As an invaluable training asset, I recommend to every forester who is not already taking it, a post-graduate course in economic forest management. Matriculation is accomplished by purchasing a small tract of forest land near your center of activities, and the course consists of handling this forest land according to the best forestry methods without drawing permanently on your pocketbook. Ten or twenty acres will do, but a hundred provide a better course. You can buy suitable land for from two to ten dollars an acre, and the original investment will be much safer than most investments made by young men. Once you have completed the land acquisition part of the course, become a taxpayer, and perhaps have paid your respects to the local assessors on Grievance Day, you may continue with the next phases of the course. These include boundary surveying, cruising, mapping, reforestation, weeding, pruning, thinning, and other parts of forest management, even to the logging and marketing of forest products. YOUR forest tract will provide an ideal place for some of your spare time, for testing some of your pet theories, and for properly orienting your professional attitude.

If you attempt to practice what you preach on your own forest land, your preaching will be tempered by your own experience and will therefore accomplish greater results. It will make you a better forester. - New York State College of Forestry News Letter.

PLACERING

By L. F. Kneipp, Washington

To Forest officers the placer miner is a familiar figure, not alone in the West but to some degree in the Appalachians, where the first gold rushes occurred. His is an occupation of unceasing patience and unending toil and eternal optimism. He searches for stream channels, both ancient and new, follows with beating heart the faint stringers of gravel that hold the promise of pay dirt, moves and removes prodigious quantities of rock and gravel and soil, washes and winnows the remaining sands, and finally is rewarded with a minute quantity of flecks and grains of gold or, at rare intervals, a heart-pulsating nugget. He sticks at his job, half buried from view, grimly indifferent to wind and weather, to the disregard or sympathy of his fellow men, deriving his compensation by beating the hardest kind of a game.

The Editor of the Forest Worker is perforce a placer minor, doomed to the same Herculean labors, the same demands upon faith, courage, optimism, and metal, if not physical, resources. He, or at present she, too must follow many blind leads, handle enormous quantities of waste and tailings, wash and winnow material in an often vain effort to salvage values, meet with indifference and neglect, and find all too few the flecks and grains and nuggets of reward. Nevertheless, the results of the work have been most gratifying. The Forest Worker has presented to foresters generally a better and more detailed perspective of the accomplishments and progress and new developments of forestry than was otherwise available. Assembled by painful effort into a single container, the flecks and grains and occasional nuggets of pure stuff present an impressive and gratifying result.

But Research is now reaching out to transport our literary placer miner into Elysian Fields where the pay dirt runs to the cubic yard, where material will be thrust upon her in unending volume instead of having to be painfully dug out and assembled in minute quantities.

It is to be only a two month assignment but its allure is tremendous and unless there

is promise of rich strikes our placer miner may be lost to us. Perhaps the thing to do now is to salt the diggings a little so that like all other true placer miners she will put aside the more glittering prospects of recognition, reward, ambition, and acclaim in other lines so as to realize her unflagging, but hitherto unfulfilled, dream of rich pockers where news about progress in forestry can be found in nuggets running a dozen to the pan.

ANOTHER BEAR STORY

By W. S. Brown, Modoc

Assistant Forester C. E. Rachford's excellent story of the Alaskan Brown Bear in the Service Bulletin of March 28 brings back memories of a b'ar story of twenty years ago on the Modoc. Chris is quite modest when he states that he is a rotten shot and suffers from a nervous dread of bears, for he has the local reputation of having killed the last known bear in eastern Modoc County.

This animal was fully up to the published description of the Alaskan Brown Bear in size, courage, ferocity, and cunning. No one knows how much lead he packed around in that big shaggy carcass of his and he seemed to have a charmed life as he went his pilfering way from camp to camp, apparently scorning the fact that he was a target for every sheepherder in the country. The writer saw the "Rachford bear" three times, once over his shoulder as he was making some twenty miles per to keep the animal from seeing him. again in fear and trembling through a slit in a tent, and the last time in a semi-rug condition when Chris packed the big skin home from the hills.

Details are hard to remember after a lapse of about two decades, but it seems that Chris was both unarmed and unsuspecting when he met the bear. Recognition was mutual, however, and Rachford knew he was face to face with the camp pest of the South Warners, just as Bruin knew that here was another of his two-legged enemies. It was to be a fight to the death. Reinforcements arrived in the form of a sheepherder with an antiquated rifle and a woefully small supply of ammunition, and the battle began. It ended with defeat for the bear.

Up to this time only three people know, or at least actually believe, that Chris Rachford did not kill the last known bear of the Warner Mts. Anyway, Chris personally conducted the campaign from the front rank and later tried his best to give the unknown Basque herder all the honor and glory. It was no use, however, and the story of the Rachford bear still persists.

Looking at the incident from a conversational angle it might be stated that this "Rachford bear" was the last survivor of hundreds of these animals which roamed that particular section in the middle '70's.

YE EDITOR DISCOVERS

Senator Walter F. George, of Georgia, has been appointed a member of the National Forest Reservation Commission, to fill the vacancy caused by the recent death of Senator William J. Harris. Senator Harris had been a member of the Commission for over four years and had taken an active interest in all conservation measures.

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The Prussian Forest Service is allowing unemployed persons to cut firewood from dead and defective trees, which are sold to them for 25 to 40 cents a cord. Anyone unable to pay can work out the cost of the firewood by planting trees. Considerable thinning of younger stands also has been done without cost by giving the wood free to the persons who cut it. In all more than 200,000 cords of wood were cut under these arrangements during the nine months ending with January 1932.

A contract has been let for the construction of a \$50,000 building at the New York State College of Forestry, Syracuse, N. Y., to house the semicommercial pulp and paper laboratories of the college, now in the basement of the present college of forestry building. The new building will be 160 feet long by 60 feet wide, a 1-story and basement structure containing approximately 18,000 square feet of floor space. The laboratories will include an analytical laboratory and a paper dyestuff laboratory. There will also be a paper-testing laboratory equipped with humidity and temperature control, a semicommercial digester room, and a paper-machine room.

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A tract of approximately 50,000 acres on the Gallatin-Madison County line in the Gallatin National Forest, Montana, has just been established as a primitive area by the Forester. This area, to be known as the Spanish Peaks Primitive Area, includes the Spanish Peaks mountain group and more than twenty small but beautiful alpine lakes. Lying at an average elevation of 8,000 feet, with a rough and broken topography, its principal value, aside from recreation, is for watershed protection, the timber being commercially inaccessible.

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Three Americans and two Canadians have been awarded fellowships in forestry by the Charles Lathrop Pack Forest Education Board for the year 1932. The successful candidates are:

Weston Donehower, Graduate student, Department of Forestry, Cornell University. To make a study of the management of red spruce for pulpwood production in the Northeastern States.

John Edward Liersch, Junior Forester, British Columbia Forest Service, Victoria, Canada. To demonstrate, through cooperation with interested logging companies, the practicability of economic selection in the Douglas fir region.

Ralph Melvin Lindgren, Graduate student, University of Wisconsin. To do research on factors effecting initial infection and subsequent development of wood deteriorating fungi which attack lumber and logs.

Harold John Lutz, Graduate student, Yale University. To continue ecological study of the "Plains" areas of southern New Jersey begun under Charles Lathrop Pack fellowship awarded in 1931, with particular reference to soil conditions insofar as they may be related to the peculiar vegetational development.

Louis Rene Scheult, Graduate student, University of Toronto, Toronto, Canada. To make a study of the use of motor trucks in woods operations with special application to conditions in Eastern Canada.

This is the third award of fellowships by the Charles Lathrop Pack Forest Education Board, whose purpose is to encourage men to obtain advanced training in forestry and in the forest industries.

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During the years 1925 to 1931, inclusive, Chief Lecturer H. N. Wheeler made talks on forestry in all States of the Union and in Canada. Over 1500 lectures were given to audiences totaling 327,937 people. Mr. Wheeler also made 33 radio talks during this period.

SHEEP GAINING ON CATTLE IN CALIFORNIA FORESTS

Sheep are replacing cattle and horses on the grazing lands of the 18 California National Forests. A review of the past 23 years of stock grazing on Forest Service ranges discloses that the number of cattle and horses grazed annually on National Forest ranges decreased from 178,000 head of stock in 1909 to 152,000 in 1932 or 14 per cent; sheep have increased from 386,000 head to 407,000, or over 5 per cent. The number of owners holding grazing permits for cattle and horses have decreased from 2846 to 1840, or over 35 per cent in that period and sheep permits have increased slightly from 322 to 333. The records show that permits for small bands of cattle are decreasing in number but that those for small herds of sheep are increasing.

Several factors have caused changes in the use of the grazing resources of the National Forests. The area of the California Region of the Forest Service has decreased from 20,752,000 acres in 1909 to 19,257,000 in 1932, or 1,475,000 acres. Eliminations from the Forests and the patenting of claims within the boundaries have accounted for part of the decreased range lands. Over 2,000,000 acres are now in State and Federal game refuges where the grazing of domestic stock is restricted to provide forage for deer. Recreational use of mountain areas has caused the closing of 488,000 acres to stock and other tracts have been closed because of the need of watershed protection or the protection of lands which are covered with young tree growth susceptible to injury by stock grazing. These factors, combined with the periods of subnormal rainfall prevalent during the past decade, have reduced the forage capacity of the mountain grazing lands. In addition, economic conditions have had their effect on the stock raising industry in California. - From R-5 Bulletin

GERY RETIRES

R. E. Gery, Assistant Regional Forester in charge of Lands, R-4, retired April 30, after more than 30 years of splendid service for the Federal Government.

Mr. Gery was born in Indiana, graduated from Georgetown University with degrees of L.L.B. and L.L.M., practicing law five years in Indiana. He entered the government service in the Government Printing Office when 16 years of age, where he was employed 12 years. He was next Special Agent for the General Land Office, engaged in the investigation of various classes of claims, more especially the famous Alaska coal cases. He also represented the government in hearings before Registers and Receivers. In March, 1911, he transferred to the United States Forest Service in Ogden and was successively promoted until he became Assistant Regional Forester and head of the Branch of Lands in 1924. He has had supervision over land classifications, land exchanges, boundary adjustments, examination of lieu selections, mineral and homestead claims, special user and recreational work. He specialized in Public Land laws, having to work out sound economic and agrarian policies in connection with alienations and additions pertaining to twenty-six National Forests in five States.

"Mr. Gery, as might be expected by any who know him," says Regional Forester Rutledge, "is noted throughout the Forest Service for his genial manner. There probably is not a Ranger's family or a forest user throughout the vast expanse of National Forests who does not enjoy his jovial visits on inspection trips. Mr. Gery leaves friends wherever he goes." - From R-4 Bulletin



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

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Thos. R. Rowland

Vol XVI No. 21

Washington, D. C.

May 23, 1932

IT MAKES HORSE RACES

By Herbert A. Smith, Washington

The inefficiency and extravagance of government are being vociferously proclaimed, but on the question how to get better government opinions decidedly differ. Witness the following:

Under the title "Federal Salary Cuts" a communication was recently published by the New York Times, which read:

"Referring to the discussion going on about taxation and public expenditure, might it not be an advantage if Federal salaries below say, \$1500, or even \$2000, were not cut at all, but that heavy cuts were made above, and that all public salaries stopped at \$4,000. By such procedure public positions would become less attractive to unworthy persons and better people might be employed.

"It is true that many persons have counted on pensions, but so many persons in private employ have also counted on future employment and income and find themselves disappointed, so why should the public employees be in a better position? It is to keep them that taxes have been increased, so they cannot expect public sympathy." - Axel Holst

But under the title "Boycott of Government Costly", the April issue of Public Management said editorially:

"There is throughout the United States a widespread and vigorous propaganda against government and governmental service. This is not the attitude of anarchists or of radicals, but of conservatives. There are those high in our industrial life who openly take the position that 'the best government is the worst,' and there are others not so high who constantly scoff and sneer at all government enterprise.

"I do not hesitate to say that the most expensive luxury in America today is the widespread opinion that government is necessarily weak, ignorant, corrupt, and contemptible. This attitude costs not only millions, but billions of dollars annually because it poisons the springs of governmental interest, enthusiasm, and service.

"This boycott of government and public life makes difficult the recruitment of the personnel necessary for the government. It invites spoilsmen and racketeers and drives away many of those who might best serve the state. It produces higher costs and lower achievement levels.

"Government is not a pest or a blight or a necessary evil - it has an important and real function to perform in modern life. Men are not paid merely in dollars and cents, but in terms of social regard and respect. They will work as hard to be well thought of as to

SERVICE BULLETIN

be well paid. The continuing denuciation of the uselessness of government and its agents will tend to discredit the public service at the very moment when it might well be built up and made still more serviceable to the community. Out in the country we used to have fires where the volunteer firemen sometimes did more damage than the flames.

"Students of government know from long experience and observation that there is no road to efficient government that does not recognize the importance of building up respect for honest and efficeint public service. Undiscriminating attacks upon all government and all public servants alike constitute the certain way to costly and inefficient public service."

Which horse is your money on?

RECREATION AND SO ON

By H. R. Kylie, Washington

Barrett (of California) sent a brochure, published by the Rim o' The World League, Crestline, Calif., to the L.F.K., and L.F.K. sent it to me, with the brief notation, "you have a competitor".

I found the following exuberant statistics that we have somehow come to look for in most "Made-in-California" literature, and wondered where L.F.K. got the idea that I'd had an attack of California-itis.

"But we must take the position that the San Bernardino Mountains are today the most outstanding point of interest, so far as mountain travel is concerned, in the entire United States."

* * * * *

"A very conservative calculation of the amount of benefit to the State of California by reason of this travel into the mountains is that probably 500,000 cars came to the San Bernardino Mountains last year, and if each of these cars consumed 10 gallons of gasoline,-

"FIVE MILLION GALLONS OF GASOLINE WERE CONSUMED HAVING A RETAIL VALUE OF ABOUT \$750,000 AND PAYING TO THE STATE OF CALIFORNIA A GASOLINE TAX OF 3¢ PER GALLON OR A TOTAL OF \$150,000. THIS IS A CONSERVATIVE ESTIMATE AND DOES NOT TAKE INTO CONSIDERATION THE GAS CONSUMED BY THOSE RESIDENT UPON THE MOUNTAINS."

* * * * *

"Based on 1,500,000 visitors in a year, it means that at a very lowest estimate, 1,500,000 meals were consumed, one meal per visitor, and all of us will agree that this is entirely too low. It should also be clearly understood that in this estimate it is not assumed that even one meal was consumed wholly within the mountain area, but certainly one was consumed during the trip; therefore, the entire area between Los Angeles and the San Bernardino Mountains is benefited by this travel.

"It can be reasonably stated that the 1,500,000 visitors to the San Bernardino Mountains would consume:

"110,000 LOAVES OF BREAD, WHICH WOULD REQUIRE ABOUT 285 TRUCKS OF ONE-TON CAPACITY TO HAUL.

"85,000 POUNDS OF BUTTER, WHICH ,IF PLACED END TO END IN 1-POUND PACKAGES, WOULD EXTEND FOR A DISTANCE OF EIGHT MILES.

"1,000,000 POUNDS OF MEAT, WHICH WOULD REQUIRE NEARLY 2000 HOGS AND ABOUT 2500 STEERS.

"400,000 PINTS OF CREAM, OR ONE DAY'S PRODUCTION FROM OVER 100,000 COWS, OR THE ENTIRE DAIRY PRODUCTION OF ALL DAIRY HERDS IN THE COUNTIES OF ORANGE, RIVERSIDE, SAN BERNARDINO, SANTA BARBARA, AND VENTURA.

"80,000 POUNDS OF COFFEE.

"50,000 POUNDS OF SUGAR.

"250,000 POUNDS OF POTATOES OR 10 RAILROAD CARLOADS.

"IF EVERYONE ATE A PIECE OF PIE, ALLOWING 5 CUTS TO A PIE, IT WOULD REQUIRE 300,000 PIES. IF STACKED IN PILES, THESE WOULD REACH A HEIGHT OF ABOUT 18,000 FEET OR ABOUT 3 TIMES THE ELEVATION OF BIG BEAR LAKE.

"IF EVERYONE ATE AN EGG, IT WOULD REQUIRE 3500 CRATES, THE PRODUCTION OF 1,500,000 HENS.

"AND THIS IS BASED ON ONLY ONE MEAL FOR EACH VISITOR DURING THE ENTIRE TRIP."

Barrett, with much modesty, remarks that "some of the statements in this pamphlet might be difficult to prove", but he goes on to say that the travel figures and amount spent for gasoline, feed, etc., (which we have quoted from the brochure), are conservative. I thought it very probable, after considering the data I had unearthed, that they were, and would like to make the observation that in our urge to be conservative, it is quite possible to understate our case, which is almost as reprehensible as overstating it. This leads to the further observation that when we finally decide to set up a project and evaluate our resources, as we certainly must, sometime, we shall feel the maximum of confidence in our "figgers" and be in a better position to evaluate our job.

I was sorely tempted to write after L.F.K.'s notation, "When are you fellows going to go out and get some recreation 'figgers'?", but, not being sure just how he would take it, I'd better not.

One thing we subordinates learn after watching and listening to our bosses for seventeen years is that we must have patience with them. They are very busy men and can hardly be expected to see things that should be done as soon as we do. I'm not sure I have the quotation exact, but I think Mr. Headley is widely quoted as saying that it takes five years for an idea to get across. That must be because he, too is a very busy man.

I suspect, too, that these bosses see many things that we do not. I mean things for one or another reason we ought not to do, which sort of evens things up, I guess, and which perhaps makes sharper the point of Barrett's note, which was that only \$2750 was spent on 53 public camps that accomodated 861,000 people. This must be classed as efficient management. I have never been in California.

THE AMERICAN ENGINEERING COUNCIL

By Fred R. Johnson, R. 2

The American Engineering Council, which consists of 26 engineering and technical organizations with a membership of 60,000, has a committee to study the engineering features of the Public Domain Commission report. At the annual meeting of the Council recently held in Washington, D. C., this committee recommended that the Council should neither endorse nor condemn as a whole the policies and recommendations of the President's Commission, but that it should direct its attention to the following phases of the report.

(a) Public Policy?

The problems of public policy arising out of the report are sufficiently important to warrant review from an engineering standpoint. The economic aspects of a proper national policy for the utilization of the Public Domain are of engineering concern.

(b) Control of Grazing Land:

Grazing lands should be placed under control and regulated and administered by a responsible agency and in a scientific manner. Range control, analogous to that of forest control, should be established.

(c) Transfer of Jurisdiction over Public Domain:

The special recommendation of the Public Domain Committee, that of consolidating and coordinating the various bureaus and agencies that deal with the administration of the laws relating to the public domain, is thought to be a sound one and is of particular interest to American Engineering Council, in view of Council's sponsorship of a bill dealing with departmental reorganization.

(d) Federal Aid Roads:

Road construction and maintenance are necessary on the unallotted and unreserved public domain chiefly in order to tie in the various highway systems. This being largely an engineering problem, should be considered by the Council.

(e) Water Resources and Control:

- (a') Erosion and Resulting Sedimentation
- (b') Flood Control
- (c') Irrigation and Drainage
- (d') Water Power
- (e') Municipal Water Supply and Sanitation
- (f') Water Transportation, Rivers, Harbors and Canals.

(f) Conservation of Resources of the Public Domain:

This includes the classification, reservation, and utilization of all land and water resources, such as mineral, power and reservoir sites, timber and forage. This work involves a number of important engineering problems that justify its consideration by the council.

(g) Reclamation:

Federal reclamation of arid lands should be continued but only when in accordance with sound agricultural economics.

3. That Council refer to its appropriate committees the foregoing subjects to which this committee feels Council should give particular attention, with instructions that the several committees carefully study these phases of the Report in preparation for appropriate action in connection with any legislation that may arise relating thereto.

Voted: "To adopt the report."

U. S. TIMBER CRUISERS MEET EL TORO

While cruising in connection with the Nation-wide Forest Survey now being carried on in Mississippi, Mark Lehrbas and Ellery Foster, members of one of the survey crews running a compass line across Marshall County, were confronted with an unusual but thrilling barrier. Many obstacles had been encountered on the strip across the State - swollen streams, deep swamps, drenching rains, muddy cotton fields, snow and ice, occasional shine stills. All had been surmounted, and they met El Toro - face to face - 1400 pounds of brawling, dust throwing bull, and, of course, in the middle of a wide-spread pasture, with no tree or sheltering fence anywhere in sight.

The old boy seemed to think the two timber cruisers were pigtailed matadors from old Spain, for with a snort of defiance he charged, head down and tail up according to the best traditions of his kind. Lacking red cloaks and other tools carried by professional bull fighters, Lehrbas and Foster had recourse to speed of foot. For a few minutes it was nip and tuck, with nip having slightly the better of it. Fortunately for the fleeing timber men, the bull's attention was attracted by the gleaming steel measuring tape that they dragged along behind them in their flight, and he started throwing right and left hooks and vicious

upper cuts at the rapidly sliding ribbon of steal. With this substitute for a red silk cap, the unwilling toreadors eased the angry bull to the edge of the field and then, with a final burst of speed, made the safety of the woods. There, after getting their wind, they set up compass, took sight, and resumed the tallying of trees to right and left in their march across the State, offsetting, however, sufficiently to the north to leave El Toro in possession of his field.

DRASTIC MEASURES TAKEN TO CURB FOREST FIRE MENACE

Fifty or more experienced woodsmen, specially trained and detailed to follow clues and make arrests; a central clearing house for the immediate interchange of men, resources and special information; analysis of local conditions and identification of risks; mobilization of regular forces of private, State and Federal protective organizations for intensive patrol of danger areas:- These are some of the measures adopted to curb carelessness and incendiarism by that small proportion of Montanans whose acts have been responsible for so much damage, destruction and loss of life in forests.

"It is too bad," said State Forester Rutledge Parker, in commenting on the outcome of a conference which was attended by representatives of Forest Protective Associations and of various State and Federal agencies, "that so comparatively few people, because of their carelessness and their disregard of the law, make it necessary to adopt such drastic measures to protect our forest playgrounds.

"But," he added, "the vast majority of the people are in sympathy with the move, as is evidenced by that public sentiment which has led more than 3000 of our prominent and influential citizens of Montana and Idaho to accept appointments as Volunteer Fire Wardens, - appointments which, backed by State and Federal Statutes, give them every needed authority to carry out the pleas of Governors Erickson and Ross for more vigorous enforcement of our forest fire laws." - R 1 News Release.

ECHOES OF THE WESTERN FORESTRY AND CONSERVATION ASSOCIATION MEETING AT PORTLAND, ORE., MARCH 7 - 9

Referring to the inquiry instituted by the Federal Timber Conservation Board, G. B. McLeod, Acting President of the Western Forestry and Conservation Association, said: "After taking testimony impartially from all sides it officially found the same conditions (all over the nation) in which we find ourselves here in the West. Most notable of all is the extension of the evils of burdensome land-carrying from cut-over land to timber, resulting in liquidation unadjusted to market, and consequently, in overproduction. Tax delinquency is already a serious threat in some localities, and with it goes breakdown of responsibility for second timber crops and for supporting fire prevention effort. Already we hear talks of shifts of ownership and plans for public reacquisition, including timber as well as cut-overs. Apparently the part the States must or should take can not be much longer ignored. The States have great and enduring responsibility in the solution of all forest problems."

Speaking of "the irresponsible and unwise proposals for relief expenditures of public funds on a vast scale," Mr. McLeod said: We have assured the budget committee and Congress that the western forest interests recognize the alarming development of paternalistic governmental activity and the need of checking it when the country finds it so hard to make required contributions to Government revenue; consequently, that we desire no identification with any demands for Government aid. We protest only against any impairment of the Government's own responsibilities for forest protection, either imposing on us of an additional burden we have no means to carry, or threatening destruction of life and resources."

E. T. Allen, forester-in-charge of the association in reviewing problems to be discussed by the conference, spoke of "the very real progress under the reforestation tax law of the Northwest" as a total of 891,000 acres has now been classified as forest land and put under the provisions of yield tax laws in the States of Washington, Oregon, and Idaho. Mr. Allen expressed his confidence that the Timber Conservation Board "desires to utilize whatever is required of its time of existence, ending in June, to be as sound as it can be in recommending anything practicable to stabilize forest industry, without either illogical paternalistic subsidy or hampering it with irresponsible conservation theories," and said "I expect the results to be sane and good."

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E. B. Tanner, Manager for the John W. Blodget timber interests of the Pacific Coast, presented a paper titled, "Proposal for Public Reacquisition of Timber Lands." He said it has been estimated by some who are in position to make the best guess that private owners are carrying a 50-year supply of raw material, whereas the same authorities think the maximum that private capital should carry is only 20 years' supply. The more important possibilities under existing laws for re-acquisition of this surplus timber land by the Government, that have been suggested, he listed as:

1. By direct purchase.
2. By exchange for other land, or stumpage, of equal value, in order to consolidate the national forests.
3. By donation. Under the heading of "Donation" the thought was expressed that in donating the land to the Federal Government the donor would retain the right to remove the timber or minerals during a period of twenty-five years. - From the American Lumberman, March 19, 1932

YE EDITOR DISCOVERS

In a recent letter to the Washington office, Jack Horton of Region 6 tells of some new developments in radio sets. He says:

"Am almost afraid to tell about the 15 lb. scout set. We have built it as an accessory to the 10 lb. portable. That is, by adding 5 pounds to the portable we have now a voice job of limited range. You can still use the portable as a code set. You can use the accessory on any portable. In other words, we built up a little 5 pound modulation stage and made it so it can be attached to any portable and thus make a voice job. Costs about \$10 to \$12. No changes made in the portable at all. You can have either a 10 lb. code portable or a 15 lb. voice and code portable, just as you please and when you please.

"Now the surprising part is that in a shop test I used one of these tests and carried on a two way conversation (voice) with an amateur in Salem. Air line distance over 50 (yes I mean fifty) miles. I hardly believe it myself yet. Surly there is something wrong. No radio engineer in the world would admit such a thing possible, but I'm not a radio engineer.

"We will give this rig a field test this summer. It looks like a promising child."

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The status of the Agricultural Appropriation Bill is (May 12) the same as it has been for weeks. The conferees adjusted the differences between House and Senate, but neither the House nor the Senate has acted on the conferees' report. The bill is being held until some orderly plan is developed for cutting - or not cutting - appropriations an additional ten per cent as proposed by the Senate and as was actually done in the case of the Interior Department appropriation, the only bill that has been passed and signed by the President.

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At this date (May 12) the idea of unemployment relief appropriations is again coming to the front, apparently with strong backing. It is not at all impossible that there will be Federal unemployment relief appropriations yet before Congress adjourns. Collision with the "balance the budget" idea would be avoided perhaps by financing unemployment relief with bonds. For some reason the same idea in connection with the capital investments in buildings, etc., included in the 1933 budget has never taken root. These expenditures, like current expenses, had to be balanced by taxes or savings in other items. Since the item of capital investments in the 1933 budget amounts to over a third of a billion dollars, it makes a difference whether it is handled like a current expense or as a capital investment to be covered by bonds.

The publishers of the ten cent store books on birds and flowers have recently requested the Forest Service to furnish them with a list of 100 trees so that they may get out another book in their series relating to the important trees of the country. It is understood that these little books, which are attractively illustrated in color, have had a very large sale in the Ten Cent Stores.

At the annual meeting of the Society of Civil Engineers to be held this summer at Yellowstone National Park, certain problems of the relationship of forests and streamflow will be discussed. Two members of the Geological Survey, W. G. Hoyt and H. C. Touxell, will present, from the engineer's standpoint, a discussion of the Wagon Wheel Gap study. The Forest Service also hopes to have someone there to present its conclusions in this study.

DEATH OF PROFESSOR JAMES W. TOUMEY

Professor James W. Toumey, a member of the faculty of the Yale School of Forestry since its foundation in 1900, and former dean of the School, died suddenly at his home in New Haven on May 6. Although he had suffered a heart attack a short time ago, his death was unexpected. He was 67 years old.

Professor Toumey was graduated from Michigan State College in 1899. He served as assistant in the Department of Botany of that College until 1891, when he became Assistant Professor of Biology at the University of Arizona, where he remained for eight years, serving as Assistant Professor, later as Professor, of Botany, and finally as Director of the Agricultural Experiment Station. In 1899 he accepted a position in the U. S. Forest Service, in charge of the cooperative work in tree planting conducted by the Government. This position he held until 1900 when he was called to Yale as Assistant Professor of Forestry.

When Dean Graves was called to Washington in 1910, to assume the duties of Chief of the U. S. Forest Service, Professor Toumey became Acting Dean, and later Dean, of the Yale School of Forestry. This position he held until the return of Colonel Graves in 1922. Thereafter Professor Toumey devoted the greater share of his time to research and to the development of graduate study. Among other activities he organized and built up the Yale Demonstration and Research Forest at Keene, New Hampshire, which will stand as a distinctive memorial to his work at Yale.

Professor Toumey held the honorary degrees of Doctor of Science from Syracuse University and Doctor of Forestry from Michigan State College. He was the author of two widely used forestry textbooks, "Seeding and Planting in the Practice of Forestry," published in 1916 and revised in 1931, with the aid of C. F. Korstian, and "Foundations of Silviculture," which appeared in 1929. He was also the author of a number of scientific bulletins in the School of Forestry series, and shortly before his death completed the work on a bulletin

describing the results of operations conducted on the Yale Demonstration and Research Forest, which is now in press.

Professor Toumey's influence as a student of forestry and his scientific leadership came at a time when both were needed and when they made themselves felt toward moulding the new profession to the sound ideals of scholarship and research. His influence on the whole field of forestry, from the educational view point, has been profound and lasting.

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LETTER OF APPRECIATION FROM GOVERNOR ROLPH

Mr. B. S. Show, Regional Forester,
United States Forest Service,
Ferry Building,
San Francisco, California.

Dear Mr. Show:

With the closing down of the labor camps in the forest areas of California. I want to express my appreciation of the important part played by the United States Forest Service in making this venture successful.

As you know, the plan of using unemployed men in state labor camps for building firebreaks and fire trails, in return for their meals and a place to sleep, was in the nature of a social experiment in this state. That it has proved so successful is due in a large measure to the splendid cooperation of the Forest Service. I am sure that we can adopt a similar program next winter to relieve the distress of unemployment. And I know we can count on your help.

I am greatly pleased that this project has contributed to forest conservation in California, a cause in which I am deeply interested. The betterment of fire protection on the National Forests is of the greatest importance to the welfare of the state, and I am glad the state has thus been able to assist.

The California labor camp program has been a fine illustration of effective cooperation between the State and Federal Forest Service. I thank you for your helpfulness, and extend to you my compliments and best wishes.

Very sincerely yours,

(Signed) JAMES ROLPH, JR.
Governor of California.

MORE FOREST VALUES

Sometimes a product delivered in the most convenient package will not bring the best price per unit. Henry O'Malley, Commissioner of Fisheries of the Department of Commerce, estimates that the value of game fish to the community in which they are caught amounts to approximately \$3 per pound, rather than the 30 cents or so that they would bring per pound delivered in regular markets.

On the basis of reports from dealers in fishing tackle, owners of boats, automobile concerns, grocery stores and others selling merchandise and service to sportsmen, he estimated that the average fisherman spends at least \$2 a pound for every black bass caught; \$5 for each pound of striped bass; and approximately \$3 for each pound of trout taken from inland streams and lakes. - From Bureau Foreign and Domestic Conservation.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY **** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES, WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER.

Thomas Roosevelt

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Washington, D. C.

May 31, 1932

THE COMMON PROBLEMS OF FORESTRY AND AGRICULTURE

By Willis M. Baker, Central States For. Exp. Sta.

(Address before the Ohio Forestry Association at the Ohio State University,
February 3, 1932)

Forestry and agriculture have much in common, especially in the Central States. Although this fact is generally recognized, many of us do not appreciate its real significance.

Both forestry and agriculture are primarily concerned with growing crops from the soil. The woodlot forms a part of most farms, and farmers own 30,000,000 acres of woodlands in the Central States, or approximately three-fourth of the total wooded area. The problems common to forestry and agriculture arising from land ownership, management, and taxation; from land erosion, floods, and droughts; from fungous diseases and insect pests; from unsettled economic conditions -- are all closely interrelated. Team work is necessary to solve these problems.

The association of forestry with agriculture is not new. The Federal Forest Service has been a branch of the U. S. Department of Agriculture since 1905. Much of its work, especially in the field of research, is carried on in close cooperation with other Bureaus of the Department. Most agricultural colleges include forestry courses in their curricula. The extension forester, on the staff of the Agricultural Extension Service, is one of the connecting links between forestry and the farm in most States, and many county agents include forestry in their local programs. Here in Ohio the State Forester and his staff are under the jurisdiction of the Agricultural Experiment Station. The Central States Forest Experiment Station of the U. S. Forest Service, which I represent, is provided with headquarters and offices here in the Horticulture Building, through cooperation with Ohio State University. The Advisory Council of this Station includes six representatives of agriculture, and five other members closely associated with agricultural agencies or interests. Cooperative studies are now being carried on jointly with the agricultural departments of Ohio State University, the Purdue Agricultural Experiment Station, and the Iowa State College of Agriculture.

There is one fact that I would like to present to you at this time, as forcefully as it can be emphasized. Forestry and agriculture must cooperate even more closely than they are at present, if a solution for their common problems is to be found. Many of these problems are also vitally important to business and industry -- in fact they are public problems.

Since the earliest settlement of this region, there has been under way a program of constant agricultural expansion. This trend of development has called for more and more land under cultivation, more land cleared of forest growth, bigger and better farm crops, and has resulted in the exploitation and exhaustion of the timber resources. Until recently this policy has not appeared to be other than logical and beneficial. Good demand for farm crops kept agriculture prosperous; lumber and forest products for importation from other regions were plentiful and cheap, and little thought was given to the results of the policy that was actually undermining the region's resources and threatening public welfare.

The recent depression of overproduction, glutted markets, and falling prices has brought us up with a start. The need for a change of program is evident. The damage that has been done through expansion and exploitation must be repaired through conservation and reclamation, if the public's interests are to be safeguarded. Forestry and agriculture must work with industry and business to repair the damage. Particularly must forestry and agriculture pull together, for many of these problems can be solved only through their cooperation.

In certain sections we have the problem of waste, idle lands -- abandoned and unproductive -- the submarginal lands whose original soil fertility has been exhausted, now no longer capable of profitable farming. As a result of these areas having been stripped of their original resources and abandoned, we have decadent and impoverished communities, no longer self-supporting, a constant drain upon the taxpayers of more prosperous regions. All business suffers because of these unproductive conditions. The solution of this idle land problem calls for cooperative effort from forestry and agriculture. Better farming of the better soils and reforestation of the non-agricultural lands are essential.

The problems of flood control, conservation of water resources to maintain stream flow and underground supplies for wells and springs, and control of land erosion -- the tremendous importance of which we are just beginning to realize -- demand the closest cooperation between the engineer, the agriculturist, and the forester. Alone, none of them can meet the situation. We must have dams, storage reservoirs, controlled stream beds; ditches, terraces, cover crops, and improved farming methods; forest cover on the steeper slopes, on the poorer lands, and along water courses. In many regions the problems of abandoned lands and flood-erosion control are inseparably connected.

The establishment and maintenance of forest cover, on non-agricultural lands and on areas subject to flooding and erosion, are essential to the successful conservation of wild life -- game, fish and beneficial birds -- and to the proper development of recreation facilities for the vacationist, the camper, the sportsman, and the tourist. Moreover, while serving all of these necessary purposes, eventually these same forests can, under wisely regulated cutting and management, provide a home grown supply of timber to a region that now imports most of its lumber and wood products at a cost of hundreds of millions of dollars annually. The restoration of forest industry on the non-agricultural lands of the Central States will result in prosperous conditions of employment and business, and prosperous, self-supporting communities in place of abandoned and unproductive areas of waste land. In certain regions the greater part of this program of reclamation and restoration must be initiated under public ownership or control; in other sections where public ownership is neither necessary nor desirable, the private owner must take the initiative. This program is now under way, but everywhere progress is still too slow. Public welfare demands that we speed up.

In the Central States, of which Ohio is typical, the relationship of forestry to agriculture may be divided into two main classes: the problem of the farm woods in those regions chiefly adapted to agriculture, and the problem of the woodland farm in those regions chiefly suited for growing forest crops.

In the regions of rough topography, steep slopes, thin soils impoverished by constant cropping and erosion; or in low, wet areas incapable of economical drainage and subject to overflow and flooding, the woodland farm has struggled for existence against discouraging handicaps. Hundreds of thousands of acres of such farms have been abandoned by their owners, and many of the farmers who tenaciously persist in cropping poor lands are barely able to exist. In the light of modern development and economic conditions, the persistent effort to crop marginal and submarginal lands is a great obstacle to agricultural prosperity, and, in the Central States, this means general prosperity. The interest of the public demand forest cover on these poor, non-agricultural lands. Yet within these same regions there are limited areas of good farm lands which should and could be profitably farmed, if the prosperity of the surrounding region could be built up, so that these isolated farms would not have to bear the whole burden of local taxation and the costs of local improvements. When such a region is developed by the establishment of protective and productive forests, there should be a good local demand for the agricultural crops from these better lands, created by communities of forest workers and the recreationists attracted to the region.

In the better agricultural sections of the Central States, it is the farm woods that struggle for existence against overwhelming odds. When lands were originally cleared for agriculture, it was considered desirable to leave certain areas in trees -- usually the poorer lands. In those days the farm was more or less a self-supporting home unit. The farm woods produced fuel, posts, farm timbers, and lumber. It often served as a windbreak, and a shelter for stock. It provided protection for game and bird life. The cutting of mature timber often yielded a cash crop that helped the owner over a period of depression.

Today in the Corn Belt the farm woods is gradually but steadily passing out of existence. Its resources have been depleted and sacrificed to raise cash. Persistent grazing has packed the soil so that the larger trees become decadent, stag-topped, gradually dying, and no new reproduction of tree growth is able to gain a foothold because of trampling and browsing by the stock. If grazing persists, the farm woods is doomed. A woods well stocked with trees is of little value for forage, whereas a well shaded pasture means a degraded farm woods.

Apparently the average farmer of today is not much concerned about the future of his woods. The present day philosophy seems to be: never raise today what you can buy tomorrow; concentrate on the main crop and don't bother with the by-products. Why plant a home garden when canned goods are so cheap? Why go to the bother of burning cordwood when gas is piped or coal delivered to your door? Steel fence posts are easier to use than wooden posts. This policy has made excellent business for industry, for which the farmers have paid with cash from their pockets.

Recently Premier Laval gave the press a few reasons for French prosperity. His first reason was as follows: "Of the four leading commercial nations, United States, England, Germany, and France, the latter country has the largest percentage of its population on farms or in rural districts -- somewhat over half. Practically all of France is adapted to a diversified agriculture, and most farmers contrive to produce a major part of their own requirements on their land."

It is possible that the modern American trend is both logical and economic, and that when the present depression ends, we shall go on as before. If so, the farm woods of the Corn Belt are doomed. However, it is also possible that this modern trend is uneconomic, and that we must return to the old idea of making the farm more of a self-supporting home unit. When this comes to pass, the farmer will realize that his woods are a valuable asset, worthy of conserving and using to the best advantage.

Within the Corn Belt and the fertile agricultural sections of this region, the future of the farm woods is primarily a problem of rural economics. It is true that the presence or absence of farm woods has considerable bearing upon the local problems of timber production, protection of wild life, and to some degree influences the problems of erosion and water conservation. Yet the possible areas of woodlands in the fertile agricultural regions are not sufficient to influence these problems vitally, from a regional or national viewpoint. Within these agricultural areas, the chief justification for woods is their direct benefit to the farm owner, and it is up to him to decide whether or not he can profit by maintaining his woods in thrifty, productive condition. He must decide upon the advantages of planting trees on his less fertile lands.

However, in the poorer agricultural sections, such as are found in portions of southeastern Ohio, forest cover over large areas of waste lands is demanded for public welfare. Here the results of a conservation program, or of the lack of one, affect everyone, and the project becomes one of public interest. Cooperation is necessary to bring about the restoration of these abandoned and unproductive areas.

It is the function of the Central States Forest Experiment Station to determine the value, benefits, and best methods of establishing, conserving and using forests, and to provide the necessary facts and information to the agencies and individuals engaged in forestry work. At the present time we are chiefly concerned with the following investigations, all of which are closely related to agricultural problems and contribute directly to the management of farm woods.

1. A study of the effects of grazing livestock in the farm woods.
2. A study of the growth and yield of forest plantations in the Corn Belt.
3. A study of the functions of forest leaf litter, and its relation to soil building, water conservation, and erosion.
4. A study of the damage and control of the destructive insect, the locust borer.

These investigations are but a few of the many studies needed in the Central States; others will be undertaken as rapidly as the resources of the Station permit. We need to learn more about tree growth on various sites, and the best methods of protection and management. We must learn how to harvest, market, and use the forest products to best advantage, and what financial returns can be expected. The economic benefits of woodlands must be more definitely determined. There is urgent need for better coordination of research effort to determine actual facts; for more educational activities to present these facts to the public; for wise legislation and administrative action to bring about results. A sound program of land utilization by forestry and agriculture can be developed in no other way.

EFFECTS OF FIRE ON LONGLEAF PINE

By Fred Morrell, Washington

The following excerpts from a report by Austin Cary to a land company in Alabama regarding effects of fire on longleaf pine may be of interest to bulletin readers who want to learn more about forestry in regions other than their own.

"On December 23, on land protected for 10 years, I cut a representative tree; it was 4.8 inches in diameter breast high and 39 feet tall. In the stump, cut 4 feet high, there were 15 rings, showing that this tree was 4 feet high 15 years ago. Next, exploring up the tree, 9½ feet above the stump we found 10 rings, showing that the tree was 13½ feet high when protection was inaugurated. By the same methods it came out that it grew 14½ feet in the next 6 years and 11 feet in the last 4, making 25½ for the 10 years of protection. This is better than 2½ feet per year against under 2 feet previously. Eleven years ago this tree must have been heavily burnt, for the ring of that year was only a third as wide as those inside and outside; little doubt in its early years it was singed by fire frequently.

"Normal Growth in Height - First, because it is important and also because it will serve as a standard or measure, I will develop the normal rate of height growth on this property as near as we ascertained it, meaning by the term the rate at which it appears longleaf timber will grow here if fire does not touch it and it is subjected to no other damaging influence. It is assumed that when 4 feet high a tree is 8 years old. From then on it grows at the rate of 3 feet yearly, reaching 40 feet in total height at 20 years of age.

"Actual Past Growth Compared. - Next I will compare with that the rate of growth in the country as it has been, this indicated by the height growth of the taller trees cut at one point and another, 30 to 45 years of age and all the way up to 65 feet in height as they proved to be. Where trees never touched by fire are 40 feet in height, trees as they have grown up subject to frequent fires were only 26 feet; or, put another way, they lost 7 years out of 12 in reaching the 40-foot-point.

"Effect of Summer Fires. - Of these, there have been two on this property that were severe enough to kill patches of young timber 50 feet tall or more, both occurred in the year 1927. We examined the effects of the burning in respect to height and diameter growth.

"Taking up diameter first, the effects were found to be rather severe, the average of our observations indicating a loss in growth around 25 per cent as indicated by the width of rings before and after the fire. This is on trees 7 to 9 inches in diameter and 50 to 60 or more feet tall. In most the depressing effect has persisted to the present time, though quite a number show considerable recovery this past season.

"The effect of these hard fires on height growth we tested after the method first explained, on trees around 40 feet tall, young and thrifty. Apparently during the five seasons of the fire and since these trees have grown less than half what they would have done had there been no fire. The shrinkage in the other case appeared to be around 30 per cent.

"Recovery after Ordinary Fires.- Persistence of the depressing effect on growth seems to be characteristic of summer fire. Apparently this is not true to any such extent of fires at other seasons. It is perfectly plain that a winter fire, so severe that height growth of the next season is only a third or half what it would have been, is usually recovered from the 2nd or 3rd year. Not entirely, however, in many cases as was made clear in an earlier paragraph.

"Thus, we believe, we have found that fire going over very small trees, before they have begun to shoot up, may not check subsequent growth; also, that up to 15 feet in total

labor could be employed in pushing this kind of work far ahead of the machine work involved in ripping, grading, and finishing. Trail builders (back fillers) could be used to keep a rough supply line open for transportation of subsistence supplies and moving of clearing camps. If necessary, additional trail builders could be purchased as needed to keep such temporary ways up with the work and camps of clearing crews. Trail builders worked two or more shifts a day for twelve or fifteen months for such purposes would pay for themselves several times over compared with the cost of hand work on such excavation as trail builders handle most effectively.

The National Park Service recently reported that by a simple but effective method the peculiar odor so common to prehistoric cliff dweller ruins has been banished from Montezuma Castle, Arizona. First, all of the rooms of the ruin were swept clean of debris and dust, and then fuel oil was sprinkled on the floor. In addition to deodorizing the ruins and settling the dust, this treatment keeps out bats.

Those who broadcast from manuscript in front of a microphone must keep the paper as far away from it as possible and drop the finished sheets to the floor, because the microphone exaggerates the crackling of the paper. A crackle-proof paper is now being made from cotton for this purpose and sells for about the same price as good bond paper. Southern firms are using it for business correspondence. It looks well and takes typewriting nicely.

Regional Forester Show and E. I. Kotok, Director of the California Forest Experiment Station, are in Washington with another heavy-set manuscript on the behavior of fire. This manuscript contains so many controversial subjects that we understand it has to be put in a refrigerator at night for fear it will set the building on fire.

TWO WAYS TO CUT A BUDGET

"I have been receiving letters from some people who think I have not been sufficiently indignant about government extravagance and waste. I can only say that government does not exist for the few but for the many, that government money is spent on the theory of benefiting all the people and not a special class, that government employees, including clerks and letter carriers, are human beings with families to educate and babies to feed just like the rest of us, and that there are two ways to cut a budget - one is with the surgeon's knife and the other with the hatchet of human misery. A crippled governmental machinery demoralizes personnel, causing a turn-over and loss exceeding the amounts theoretically saved. We know there is suffering outside the government on the part of those unemployed, those who have had their pay cut. So also will there be hardship upon many in the government service who will also have their wages cut down materially as is now indicated by pending legislation. But what shall we say of a system of budget-cutting that throws forty or fifty thousand more people out to the soup kitchens and bread lines to be supported by taxes coming out of the city and State and county treasuries? There is no net gain there to society but an increase of the people's net expense.

"We must balance the budget, yes, but we need not and will not destroy the government in doing it."

David Lawrence over N.B.C., May 1, 1932.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT. ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER.

Roscoe Ransom

Vol. XVI No. 23

Washington, D. C.

June 6, 1932

A LOOK AHEAD

(From Investigative Committee Meeting Report, Region 5, for 1932)

One of the most outstanding things in surveying our forest research history, thus far, is that our plans have been too timid, because our original idea of the amount of research which would be necessary was much underestimated. From the public point of view, the consummation of forestry effort, research and otherwise, must be a wise and adequate forest policy. But every point considered in respect to such a policy raises a new swarm of questions which add to the jobs of the researcher. The provisions of our research Magna Charta, the McSweeney-McNary Act, will prove much too limited, even if their financial authorizations were now being realized in research resources. With those resources not being realized, there is grave danger for the future.

In California, watershed problems stand out as of paramount importance. Here, the knowledge which must still be obtained is beyond anything contemplated by the McSweeney-McNary Act, even with the Leavitt amendment. In the water-controlled West, not only are agriculture and human habitation conditioned by available water, but the function of wild lands in controlling the availability and quality of that water, and its contingent erosion activity, become the dominant criteria of land management, and of the choice of major land uses in marginal zones.

Fire, commonly accepted as the major concern of foresters, is so, largely because of its connection with the erosion-streamflow problem; and beyond that, not so much because it is a tool or an adjunct of forest management as because protection from it is a necessary condition of having any forests to manage. In so far as present fires must be reduced before forestry can be realized, fire research is of primary present importance, and the more so because the time when its success will have worked its disciples out of a job can not be postponed to that distant Utopia of complete knowledge and perfect practice, lest there be then no forests to practice upon.

What is the hope for industrial forestry? This involves technical and economic questions, which can be answered by study. If it comes, it will require, first, a body of knowledge which the forester has not thus far been able to present to the industry in the concrete detail of the individual operation. Additional silvicultural and management knowledge will be essential if future forest land management is to be profitable and successful, as well as additional technical knowledge in the Products field. Further extension of

studies of the woods and mill type will be valuable. But to these lines of research activity must be added a whole battery attack upon the economic problems peculiar to the combined timber land owner-forester-manufacturer. Private forestry will be of public concern, not only from the public interest in the private treatment of the land resource and in the adequacy of State and national wood supplies, but also in the maintenance of an industrial structure which will not again precipitate upon the people the evils of unstable supply with the dissipation of the basic resource brought by the industry upon both the public and itself in the present.

Grazing will for a long time be a problem of importance. A large part of the problem raised by grazing comes from its intimate relation with the problem of fire, and, like that of fire itself, with the problems of water and erosion. The grazing industry as now conducted presents the strange spectacle of an industry eating itself up; destroying, by land abuse, not only the future sustenance of its own cattle but, in a measure, the ability of the State to sustain its own citizens. Its practices are a legitimate subject of public concern.

All of these problems ultimately center in, or hinge upon, the one major problem of the use and management of land. This problem, even more than wood goods supply, is the ultimate crux of the Forest Survey. Shall the lands cut over by the lumber industry be permitted to be further devastated and, when they can not longer be held in private ownership, be allowed to create for California the disaster of a "new public domain" such as even now is overwhelming other States? Shall the foothills belt surrounding California's great valleys be left indefinitely to the scourge of fire and overgrazing, ultimately to wreck not only itself but the great valley also in a man-made desert, with good soil gone or buried and no longer a dependable water supply to grow anything on good soil? Shall the remaining public domain further be left to revert to desert through unregulated and vicious lawlessness in public ownership, or sought to be turned over to private ownership which can not realize from its low grade productivity profit sufficient to provide the improvements which would increase its productivity? These threats to the future habitability of the whole land demand action. But sound action must rest upon sound knowledge. The Forest Experiment Station dedicates itself to this task, but will need ten-fold increased resources for success.

FEDERAL EMPLOYEES UNION AGAIN

By Fred Morrell, Washington

In the January 19, 1931 issue of the Service Bulletin I called attention to the desirability of Forest Service employees belonging to the Federal Employees Union. Events since then have fully justified the position taken, and the increase in Forest Service membership has demonstrated a belief in the organization.

One must be in Washington to appreciate the tremendous pressure that groups of all kinds are putting on Congress and the administration to balance the budget at the expense of others than themselves. The Federal employee is fair game for most of these groups and it is only by organization and cohesive action that he can hope to register in his own defense. The Federal Employees Union is his constituted agency and it is and has been effective. We may not, as stated in my previous contribution to the Bulletin, always agree exactly with what the officers of the Union do, but this is no time to quibble over differences or to withhold support.

Forest Service membership in Washington is the highest of any Bureau in the Department, and it no doubt ranks high in the field, but those who do not belong are failing in an important way to look out for themselves at a critical time, and are allowing their fellow employees to carry the burden. Their support is needed now.

FORDS AND CHEVYS

By Joseph C. Kricher, R. 7

'Most every owner of a car tells you how his is better than any other, how he can operate it cheaper than another make, etc. It's quite natural that a man should think his car the best. Many of these statements are based merely on opinion, since it's rare to find a man who keeps good operating cost records on his own car. For government cars, however, operating costs are kept. Region 7 figures for the fiscal year 1931 show some interesting facts for light trucks and sedans. Here are some extracts from the motor operating costs:

Cumulative Motor Operating Costs

(No depreciation included)

Type	No. cars	Average miles	Cost per mile	% cheaper
Ford $\frac{1}{2}$ ton	61	16,040	2.1¢	-
Chev. $\frac{1}{2}$ ton	11	14,100	1.6	24%
Ford $1\frac{1}{2}$ ton	56	12,435	3.1	-
Chev. $1\frac{1}{2}$ ton	22	11,287	3.0	3%
Ford Sedan	6	9,135	1.9	-
Chev. "	5	7,762	1.7	11%

For all three classes of autos the operating costs per mile for Chevys were cheaper than for Fords. It is true the Chevys have averaged less total mileage so that the figures may be somewhat farther apart than they should be, but still there is evidence that Chevys can be operated a little cheaper than Fords.

In spite of the figures, I should not expect to convince any Ford owner that Chevys are cheaper to operate than Fords and I should expect the Chevy owners to grab the figures with glee. So I'd better compromise by saying that the operating costs on both are mighty reasonable. At any rate, I hope you'll find the figures as interesting as I did, and possibly the figures will make the Ford drivers try to keep the lead which they have and the Chevy drivers attempt to beat out the Fords. So the race is on. - From R.7 Bulletin.

TIMBER MANAGEMENT PLANS AND POLICY STATEMENTS

By Howard Hopkins, Washington

A resumé of all timber management plans and policy statements in effect January 1, 1932 (exclusive of R-8) shows approved policy statements covering 99,561,201 acres of gross area or 83,938,606 acres of net National Forest area, with 25,188,620 or 21,478,918 acres of gross and net acreage, respectively, covered by approved management plans.

At once the question arises as to what these figures mean in comparison with the

size of the whole job. It is gratifying and even surprising to find that 76 per cent of the gross area of 163,854,517 acres of National Forest area in the United States is covered by approved management plans or policy statements, with 105,417,525 acres or 75.6 per cent of the total net National Forest area of the United States likewise under approved timber management plans or statements.

Before we burst a button in pride at covering three-fourths of the National Forest area of the United States with approved timber policy statements or management plans, one question arises--are all these plans and statements up to the present or recent standards? A review of all plans and statements with segregation of all deemed not up to the standards of the last few years showed 36,102,153 acres of the gross National Forest area covered by policy statements and 25,188,620 acres of the gross area covered by management plans of the standard of the last few years. Together these plans and statements in present satisfactory condition form 37½ per cent of the total gross area and form 36 per cent of the total net area of the National Forest area of the United States. The decrease of from 75 per cent to 36 per cent, shown above, indicates the rapid rise of our standards and may well be viewed with pride, and also as a challenge to the other 39 per cent.

Among the individual Regions under the last segregation of plans and statements up to present standards we find R-3 heading the list with 75.4 per cent of its gross area and 72 per cent of its net area under satisfactory plans or statements. R-5 comes in second with over 50 per cent of its gross and net area in this category; while R-2 is a close third with 47 and 46 per cent of its gross and net area respectively under statements and plans up to the standards of the last few years.

FOREST RANGERS' SONG

By C. E. Randall, Washington

Several requests have been received from radio listeners for the words to the Forest Rangers' song used weekly as a signature piece with the "Uncle Sam's Forest Rangers" program. The song was "swiped" from the musical comedy "Rio Rita," and with the connivance of the National Broadcasting Company, Uncle Sam's Forest Rangers appropriated it for their own. Since many members of the Forest Service might also like to know the words, they are given herewith.

When we rangers ride the trail
In sunshine, wind or snow or hail,
We're always ready,
We're true and steady.
There's a friendly laugh, a joke,
We're cheery until we see a smoke,
And then we fight, sir,
To get it right, sir.
We never leave a fire till no spark
is to be seen;
Our job's to guard the timber,
keep the forest green.

Chorus -

We're all pals together,
Comrades, birds of a feather,
Rootin' pals, tootin' pals,
Ridin' pals, fightin' pals,
In rain or sunshine.
Pals! Say there brother,
Pull for each other -
Always play the game, fight the flame,
For we all belong to the Forest Rangers,
Man to man.

FOUND! SECTION 37

"You are now," said Ranger Riebold, "near the middle of Section 44. This road takes us into Section 37 of the same township." He meant it, and was not relating Paul Bunyan's famous exploit of logging Section 37. When some townships now in the Homochitto Purchase Unit in Mississippi were surveyed under the direction of the General Land Office about 100 years ago, irregularly shaped areas already entered or patented were given section numbers in the regular series, and the result is that there are from 37 to 45 sections, some less than 640 acres in area, in each of several townships. The particular Section 44 mentioned is a full square mile, however, as are several other sections which carry numbers higher than 36.

And, to use Austin Cary's favorite expression, they are certainly good growing lands. Loblolly pine is the most abundant species, but shortleaf and longleaf are present, as well as many species of hardwoods. The Homochitto is small as yet - only 67,000 acres acquired or being acquired - but we shall hear a lot about its productiveness. More remarkable still is the relative lightness of the fire problem. Believe it or not, here is an area in the southern pine region where it does not seem to be the habit of the local population to "put out fire" in the woods, and the ranger, on the job only since February, thinks there are over 4,000 cattle grazed within the area. One thing is sure. There have been no fires for many years on thousands of the acquired acres. - E. E. Carter.

"PUBLIC RELATIONS DOES PAY"

By Albert Wiesendanger, R. 6

Reference is made to the article, "Does Public Relations Pay?" by Margaret W. Chipley, R. 2, on page 5 of the Service Bulletin for March 28, 1932.

What Mrs. Chipley says of the awakened interest of teachers and pupils in the study of conservation in the Denver Schools is also true of schools in the Pacific Northwest Region.

Region 6 has been conducting an educational campaign by giving before the schools of Oregon and Washington programs on National Forest activities, covering the various phases of a Forest Ranger's work and stressing forest fire prevention and the protection of our natural resources.

Since January 18, 123 illustrated programs have been given in the Seattle high schools and grade schools, reaching an audience of over 32,404 boys and girls. A notice of this program was published in the school bulletin, and since then the telephone in Supervisor Weigle's office has been busier than when several Class C fires are burning on the Forest, various requests being received from principals and teachers for our program. Fine cooperation is received by the speaker at all schools, and teachers follow up the program with work in the classroom.

From the many fine letters of appreciation received by this office both from the teachers and from the children, I, too, agree with Mrs. Chipley that the Milwaukee Journal's statement that "The schools seem to resist such instruction" is out of order.

REGION 5 PLANS 800 MILE SCENIC HIGHWAY

The "Sierra Way" - 800 miles of broad, smooth highway through the most scenic part of the Sierra Nevada - is proposed by Region 5. The project extends in a northerly and southerly direction, mostly through National Forests and Parks, from the Kern River country in the south to Mt. Shasta in the north. Well improved lateral roads connect with cities and towns on either side of the range.

Along The Sierra Way may be seen many places of historic interest in the early development of the State, with such well known scenic features as Mt. Shasta, Burney Falls, Lassen Volcanic National Park, Lake Almanor, the Feather River country, Donner Lake, Lake Tahoe, Carson Valley, Mono Lake, Kings River Canyon, and Yosemite, General Grant and Sequoia National Parks.

Although not yet recommended for general travel, practically the entire route is passable for automobiles. About 35 per cent of the proposed highway is composed of low standard National Forest protection roads which will be gradually improved as required; 50 per cent is already constructed to major road standards, and the remaining 15 per cent is now under construction by the Forest Service and other Federal and State agencies.

Within the National Forests the roadside will be kept free from objectionable features and the natural scenic conditions will be developed and protected. A similar policy will probably be adopted by owners and administrators of land outside the jurisdiction of the Forest Service, and when completed the road should prove one of the leading scenic attractions of the State. - From R-5 News Release.

YE EDITOR DISCOVERS

Three mountainous tracts within Colorado were recently set aside as Primitive Areas by the Forester. They are, the Mount Shavano, Rawah, and Uncompahgre areas, located in the Cochetopa, Roosevelt, and Uncompahgre National Forests, respectively.

The Mount Shavano area, totaling 32,100 acres, is outstanding because of its high elevations, rough topography, and high scenic values. Nearly fifty per cent of the area is above timberline and it includes many high peaks. Mount Shavano, whose summit reaches 14,239 feet above sea level, is the best known mountain in the area and has received world-wide fame because of its snow angel. Although approximately forty per cent of the area is covered with forest, the bulk of the timber is non-commercial in character and its greatest value is for watershed protection in streamflow regulation and checking harmful erosion.

The Rawah area, containing 25,720 acres, is within an old glaciated region containing a number of beautiful glacial lakes and a small living glacier on the headwaters of Rawah Creek. For scenic features, this area may be classed among the highest type to be found within the State.

The Uncompahgre area is located in a region of exceptionally rugged mountain beauty and grandeur. Because of its topography, difficulty of travel, and the wild life, this region is a most attractive one to the hardy mountain climber and the naturalist. It includes



THE CHIEF AND THE CLARKE-MCNARY GANG (TILLOTSON ABSENT)
FRONT ROW: MCHARG, PRICE, MORRELL (CHIEF), HAMEL, EVANS
BACK ROW: MACDANIELS, BRUNER, EBERLY, BACKUS, HASTINGS



three peaks - Wetterhorn, Sneffles, and Uncompahgre -- all of which exceed 14,000 feet, and four others exceeding 13,000 feet in elevation.

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The tax bill is being handled on the floor of the Senate, but the Omnibus savings bill, including questions of reduction of pay for Federal employees, is being worked on in closed sessions by Senate committees. There is therefore no way of forecasting what the final outcome on the Omnibus bill will be in the Senate.

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Although numerous bills for unemployment relief are being introduced and it is assumed by many men that some form of unemployment relief will be enacted before Congress adjourns, the indications of the moment are that such appropriations will not include an expansion of road and other improvement work on the National Forests. The trend will doubtless switch toward and away from expansion of National Forest work several times before Congress adjourns, or before any actual appropriation is made.

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The usually confident Branch of Forest Management has been puzzled. A Policy Statement for our smallest National Forest, the Luquillo, deals with hundreds of trees of which only a few are recognized by the foresters in that Branch even by genera, to say nothing of species. Constructive criticism of silvicultural recommendations can hardly be given under these conditions. But what a Forest! A little less than 14,000 acres of mountainous country, receiving between 150 and 200 inches of rainfall annually, where there are no roads and even the trails have to have virtually a stone pavement to prevent complete destruction by washing, the first function of the Forest is watershed protection. There is no fire problem. The first timber sale was made recently. It involved a small quantity of windthrown timber to be whip sawed (there are no steam or gasoline sawmills). It was made at \$30 per M for the better species. Yes, \$30 per M stumpage.

The Statement suggests rotations of 30 to 50 years for most of the species to be used for sawtimber, and of from 5 to 20 years for species to be cut for charcoal, posts, ties, fuel, tannin, and other minor uses. Quite different from the Coconino. Occasionally a warning note is sounded, such as that *Hippomane mancinella* "has a poisonous sap which necessitates considerable care in felling and in thoroughly seasoning the wood before working." The Luquillo is a unique member of the National Forest family, but will be heard from with increasing frequency as time goes on.

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The Federal Employment Stabilization Board has called for a revision of the six-year plan which was submitted to it by the Forest Service last fall. At this date, May 26, an effort is being made to enlist the support of the Secretary of Agriculture, who is a member of the Board, in a plan for simplifying the Board's requirements.

Within the last ten months, five different estimates have been submitted to the Board by the Service in connection with unemployment relief. The preparation of one of these was a very simple matter, but the others were rather burdensome jobs. The six-year plan submitted last fall cost the Service \$4,000 for work done in the field alone. If it is insisted that the six-year plan be revised as the printed instructions contemplate, it will probably be necessary to call for field work again. It is very difficult to get Federal agencies who have power to call on Bureaus for reports and compilations of data to employ the same policy of economy which the Bureaus are expected to observe in expenditure of money and employment of personnel.

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Taking advantage of a severe fire which occurred in the watershed above a reservoir, the California Forest Experiment Station has made a silt survey to determine the amount of material washed down from the burned over slopes. It is expected that the data when finally worked up will show a very material loss in storage capacity due to this fire.

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Did you notice Evans's expression in the picture of the Clarke-McNary gang? It looks to us as though the boss had called him down, because all the others are smiling.

A WORD OF COMMENDATION

The following letter was received by Mr. Keplinger, in charge of training, Branch of Operation, from W. J. Donald, Managing Director of the American Management Association of New York City:

Dear Mr. Keplinger:

Yesterday I had an opportunity to go over pamphlet No. 7, Executive and Personnel Management on the National Forests. I think this is so superior to anything else being done in the government service in regard to training that it is quite outstanding.

In fact, considering the problem that grows out of the wide geographical distribution of the forest service men, I think it represents as fine work as is being done anywhere in business.

Sincerely yours,

(signed) W. J. Donald
Managing Director

The Forester's comment on Mr. Donald's letter is contained in the following memorandum to Dr. Stockberger, Director of Personnel and Business Administration, Department of Agriculture:

Dear Dr. Stockberger:

I am enclosing a copy of a letter that I know will interest you. The writer, Mr. Donald, is as you know one of the industrial advisors to the Council of Personnel Administration. Because of his position as managing director of the American Management Association he is said to know intimately the work of all the most progressive industrial organizations of the country.

Is this letter not an indication that, if our critics would only take the trouble to investigate, they would find that much of the work in the Government Departments is fully equal to that being done in industry?

Very truly yours,

(signed) R. Y. Stuart
Forester.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

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Theodore Roosevelt

Vol. XVI No. 24

Washington, D. C.

June 13, 1932

THE COST AND CURE OF EROSION

Parts of an Address by Secretary of Agriculture, Arthur M. Hyde,
Before the 57th Annual Meeting of the American Forestry Association, Baltimore, Md.,
May 26, 1932.

Some pages in human history reflect no credit upon mankind. First in importance is that page which describes man's treatment of the soil.

Man was placed in a garden. He has transformed vast areas of it into desert. He has destroyed the cover on thousands of acres; he has laid waste wide stretches of pleasant country; he has made human life all but impossible in many places.

The world is full of examples. Mediterranean nations now eke out a bare existence where once they maintained a flourishing civilization. China periodically suffers from famine brought about by man's own destructive hand.

We in America are fortunate. We still have time to choose between conservation at low immediate cost, and continued exploitation at an outrageous ultimate cost.

We, too, have inherited a garden which we have fully possessed. We have been too busy with our works to take stock of our possessions, how they have been obtained, what has been or is now happening to them. It is time to give serious thought, from a national standpoint, to the land. ***

Man achieves his fatal efficiency as a destroyer by processes which are entirely preventable or controllable. He cuts off the forests over large areas. He burns the ground cover, exposing the land to the washing of surface water. He overgrazes the original prairies and by destroying much of the grass vegetation, leaving the soil to the mercy of the running water; and he plows the slopes against rather than with the contour of the land.

Two sets of consequences ensue, one affecting our soil fertility, the other our water supply.

Erosion removes not only the fertility of the soil on the farm and range, but removes the soil itself. As the humus soil covering and the moisture reserves of the soil are lost, fertility on the farm and carrying capacity on the range disappear. The tillable areas actually decrease because of gullying, and the expense of cultivation increases where erosion has begun to divide fields into plains and valleys.

In many parts of this country, from 10 inches to 2 feet of the topsoil has been removed in less than 30 years. ***

The transportation of great masses of sand, silt, or rocks from one place to another is merely the first cost to the nation. Other and larger costs succeed that. Destructive erosion changes the water relationships of a whole locality.

It works in this way: Suppose the whole Lake States region, for example, were covered with a concrete floor, slightly sloping towards the lakes and streams. Every drop of rain or melted snow would rush immediately towards the lakes and streams. We would have no ground water; no water for plants; no steady flow for waterpower; and the streams would rise rapidly after each rainfall and subside to nothing in a short time. ***

Anything, therefore, that can catch the precipitation, retain it in the ground to be used by plants, build up the ground waters and prolong the period between its arrival on the surface and its ultimate passage to the streams, is beneficial to nature and mankind. If we could retain every drop of precipitation in the soil, we would not need to worry about soil fertility, about climate, about silt in the streams, or about floods and low stages in rivers and lakes.

As you know, the capacity of the soil to absorb and retain water depends in considerable measure upon the presence of humus organic matter in the soil. If a forest is cut off and burned, if a field is allowed to lose its topsoil and the contained organic matter, the absorptive capacity of the soil is reduced.

Water falling on such soil runs off rapidly, picks up part of the soil surface and carries it to the streams as sediment. Result: Farms lose fertility and soil, small streams are choked, streams are filled with mud, navigation on larger streams is made hazardous and costly, and, most important of all, the region becomes impoverished for water. The ground waters are lowered, wells dry up, and springs disappear. Even though annual precipitation remains constant, we may have what approaches a drought, because the natural cycle of water and soil relationship has been shortened and disturbed.

The water resources or water capital of the country can be regarded as of two parts, the currency and the reserve. The rain, snow, and dew are the currency. The water accumulated within the ground, within reach of growing plants, forms the reserve.

It is this reserve water supply which makes streamflow possible, farming feasible, and sustains production and population in the greater part of the settled country. The reserve water capital has been estimated to be equal to 25 feet in depth. This represents an accumulated 10 years' rainfall.

When the first settlers pushed across the Appalachians into Ohio, Michigan, and Minnesota, the pioneer homesteads were usually located near springs. After a decade or two many of the springs failed. Shallow wells were dug for domestic water supply. But these in turn failed and were either deepened or replaced by drilled wells. This much change is known to have taken place on the same homestead within from 50 to 90 years.

Some years ago the Department of Agriculture examined about 11,000 wells in 10 central States. In more than half of the wells examined, the water level had dropped on an average 14 feet during the 80 years of settlement.

Erosion is not of course solely responsible for this reduction in the underground water supply. The increase in population and corresponding increase in area of cultivated crops, the draft on the reserve water through wells, and through water taken directly from rivers and lakes, account for much of it. ***

Consumption of water for crop and animal production, and for the use of man and animals, however, accounts for only 30 per cent of the actual loss of water indicated by the lowering of the wells. The dominant cause of that depleted water supply is the loss of rain and snow water through surface run-off unretarded by adequate cover, particularly during the non-growing season. The depletion of our reserve water capital, upon which the agriculture of this country depends, is therefore intimately connected with the destructive floods and soil erosion we are coming to know too well in this country.

Let me complete our indictment of erosion by briefly listing these additional consequences:

By depositing silt in the streams, erosion pollutes them, and menaces public health, fish life and fishing industries.

Erosion can be held largely accountable for disastrous floods, on the one hand, and drought, on the other.

Silt deposited in major streams can render great investments in power and irrigation reservoirs useless after a very few years. It can likewise impede navigation during low stages of water and aggravate flood conditions at high stages. (Note the annual bill we have to pay for dredging river channels and harbors.) You are familiar with the toll taken by both spring freshets and major floods in damage to roads, bridges, buildings, and to overflowed lands.

Much of this damage to our soil and our water supply can be prevented. We can so alter cultural methods in farming as to increase percolation of water into the soil, returning to the soil every available bit of organic matter, terracing and strip-cropping to impede the rate of run-off. Gullying can be prevented by soil-saving dams. Cultivation on slopes of more than a given steepness can be suspended. Pastures too steep to be grazed without erosion can be converted into woodlots, or at least allowed to have a rest from too intensive grazing.

We can make it a matter of general policy to discourage the cultivation or overgrazing of lands too steep to escape erosion except when protected by a cover of vegetation. It may be wise to develop our national forest policy to provide for maintenance of a dense forest or grass cover on critical watersheds, having regional or national importance. When State and national finances permit, it may be wise to extend our forest policy to cover soils subject to excessive erosion. Similarly, grazing must be regulated on the western ranges of our remaining public domain in order to prevent disastrous erosion.

Once the few fundamental facts about erosion are understood, the remedies become perfectly clear. The situation is simply this: there is only one fundamental way to control navigation and regularity of streams, to protect fish, and to maintain normal climatic conditions and abundant crops, and that is by retaining in the ground itself as much as possible of the precipitation falling on the ground, and by retarding as much as possible its run-off from the surface of the soil.

The Orient, notably China, provides the classic example of how whole regions can be devastated by the destruction of forests and resulting soil erosion. The Orient, particularly Japan, also gives us the classic example of how intelligent cultural and conservation methods, even upon slopes, can save every drop of water and soil fertility without the adoption of expensive fertilizer even after 40 centuries of cultivation. From bitter experience the Orient has learned. ***

Erosion strikes at the vitals of civilization. It is the problem of the farmer, the fisherman, the builder of waterways and reservoirs, the business man, the legislator -- the problem, in short, of every thinking citizen of the Nation. In part an individual problem for the farmer, it is also in large part a problem for community, State, and national action. In the permanent improvement of waterways and water supply, in the conservation of soil resources, in our attempts to achieve a balanced agricultural production, and to maintain modern industrial civilization, our efforts must begin on the land.

It is for that reason that a sound national policy of land utilization -- of which erosion control is a vital part -- is so basic to a solution of our major agricultural problems. A wise land use program lies at the base of many of our problems -- social, political, and economic.

Our regional and national land use programs and policies may make or break any efforts to balance agricultural production to demand. The use we make of the land is inextricably bound up in our farm tax and credit problems. Local industries and whole communities have been known to flourish or to die, depending on whether the land supporting them got wise use or short-sighted abuse.

There are those, no doubt, who think of forestry as primarily a conservation program designed to protect our forests as a source of wood supply. Even from this standpoint forestry is amply justified. But forestry has a vastly wider meaning, and a much larger importance when considered as a part of a broader program for the conservation and wise use of the landed estate of the Nation.

Is the agriculture of large areas -- even of whole States -- in dire distress? Look first for causes in the kind, character, and economic location of the land. Perhaps a semi-arid prairie has been plowed ill-advisedly during a period of high prices, or a series of years of more than average rainfall and the attempt is being made to wring a living by cultivation from land which Providence designed for grazing. Perhaps a naturally thin soil has been devastated by too much or an unwise cultivation; so that the best of men and the best of methods could not wring an American standard of living from it. In the one case, the restoration of the land to grass, in the other its reforestation, may be the answer. In either case an answer must be found, if American Agriculture is to be saved.

This Nation has incomparable resources in land, labor, and capital. No less important is the intelligence with which these assets are utilized. The individual farmer will have to show resourcefulness in meeting changes in world economic conditions. He needs to adopt every economy of production. He needs to recognize handicaps, natural and economic, that foredoom him to failure. But it is no less vital that the Nation, in the interest of a profitable agriculture and a balanced national life, shall promote a wise utilization of our resources. Our traditional national policy of planless agricultural development should be replaced without delay by a program based upon such a utilization of our land resources as will yield greater economic and social values, will stay erosion and soil depletion, will preserve and conserve our land inheritance, and limit our agricultural plant to such a size as will supply the Nation's needs, without the ruinous blight of overproduction.

PUBLIC RELATIONS DOES PAY

By John McLaren, R. 9

Of extreme interest to me was Mrs. Chipley's article in the Service Bulletin of March 28, because it was my privilege to work from the Denver office for a number of years and I have personal knowledge of the fine work which she was and is doing with the school children of Denver along educational lines.

We are a long way behind in accomplishment, in this work, in many parts of R-9, partly because we are a new Region and this sort of work is just being initiated, and too because we do not have a Mrs. Chipley available who has the whole-souled interest in the work and the unusual adaptability for putting it over as has that particular individual in Denver of whom I speak.

I have had in mind making a reply to the article for some time, but even on November 30 of last year, when the editorial referred to was published, there was some water going over the dam, and that has increased in volume as time has gone along, so that I felt a little delay would be desirable. Just to indicate somewhat briefly the fact that we are giving a lot of thought and some effort to the furtherance of educational work along conservation and forestry lines, the following mention may be worth while.

Late last fall, a State Teachers' Convention was held in Milwaukee, the attendance

being about 12,000. The opportunity was taken by the Forest Service, in cooperation with the Milwaukee Boys Technical High School and the Wisconsin Conservation Department, to put on an exhibit, showing many phases of forest activity by means of mounted photographs and making available for distribution a wide variety of literature. It is estimated that 9,000 of the teachers visited the Forestry booth and all of them took away more or less of the printed material. This was done with discrimination, indicating that the individual was taking only such things as he or she felt would be of immediate use in the classroom.

Partly as a result of the contacts made, it was decided to put out something in the nature of an outline which teachers might follow, and all available material bearing on the subject was requested from other Regions. A "Teachers Forestry Handbook" was compiled following closely along the lines of the R-6 publication and making use of more or less of the material originated by George Rohrbaugh of the Gunnison, Colorado, State Teachers' College. This Handbook, about 100 mounted photographs, and an assortment of printed publications, bookmarks and similar material were assembled in boxes constructed for the purpose. These boxes have been in constant circulation since the first of the year. The experiment has seemed worth while for Wisconsin, and the indications are that the time is ripe for making a similar effort on the State of Michigan.

It has been learned that others are working along similar lines. Mr. E. V. Jotter of the University of Michigan, has put out a great deal of mimeographed material as an aid to teachers.

Mrs. Martha Riley, of the Milwaukee Vocational School, at which the attendance averages 10,000 per week, has about completed a course for the use of teachers there.

The Wisconsin Conservation Department is also working on outlines of a similar nature.

Mr. A. J. Parmley, of the Boys Technical High School of Milwaukee, an enthusiastic conservationist, has been circularizing principals of schools and other educators this winter with questionnaires relative to the need for giving more attention to this phase of educational work and in return has received some very constructive suggestions and comments.

There are other agencies working, some of which are probably not yet known to the Regional office, and space, of course, would not permit too much detailed mention.

Public officials in the State of Michigan have done a wonderful piece of work in connection with the establishment of School Forests. In many places, 40 acres or more have been donated by some private individual or company, or by the County; the State has furnished trees for planting; the schools turn out and do the planting; and dedicatory exercises are held. It is an inspiration to see the amount of good that has been done in arousing very keen interest on the part of boys and girls in this way.

Throughout the Region the Forest Service has cooperated with various organizations and individuals in the establishment and planting of George Washington Bicentennial Memorial Forests, and while a lot already has been done along this line it is probable that much more will be accomplished during the year 1932.

The pledge which Mrs. Chipley uses came to the attention of Mr. Hugo Sauer, district chairman of the Conservation Committee for the Kiwanis Clubs in this region, which includes all of Wisconsin and Upper Michigan. He was so enthusiastic about it that he is having several thousand printed, and they were first put to use recently when they were placed at each plate at a Kiwanis luncheon. Next, they will be used in the same way at the next meeting of the Izaak Walton League which probably will be a Father & Son affair. Several thousand will be turned over to the Forest Service without cost for such use as we care to make of them.

I might continue with mention of many other things bearing on the subject, but, after all, we must candidly admit we are a long way behind other Regions in this class of work. However, we want you to know we are interested, have started, and intend to scratch gravel until there is less of a gap than at present.

As a result of the above activities, there is scarcely a mail that does not include requests from school children and others for literature and information bearing on the subject of forestry and fire control. We know we have a fertile field to work in and we are prepared to start cultivating with the full assurance, from examples set in other Regions, that we can in time attain success.

IDAHO BOY SCOUTS IN A BIG UNDERTAKING

Panhandle council of the Boy Scouts of America, with W. D. Rounsavell as executive, is undertaking a gigantic tree-planting memorial to George Washington. Cooperating with Charles D. Simpson, Supervisor of the Coeur d'Alene National Forest, it will plant 50,000 trees on 80 acres in Fourth of July canyon, and 18,000 trees on 25 acres on Placer Creek near Wallace. The young trees, white pine, ponderosa pine and spruce, will come from the Forest Service nursery at Haugan, Mont. Local Forest officers will instruct the boys and supervise their labors.

The scouts will work two days a week, starting as soon as ground conditions are favorable. A camp will be set up in the canyon to house the boys on that project, and on the placer Creek area the scouts will be taken daily from Wallace. Commending the spirit of the undertaking, Supervisor Simpson says:

"It seems doubly fitting that one of the two memorial forests to be established locally should be located in a spot already historically known and designated by a name so closely linked with that of Washington. The canyon receives its name from the fact that Captain John Mullan, military road builder through the region, marked a camp site on this creek with the date of his stop there, July 4, 1861. The great white pine tree with markings clearly visible, still stands about two miles above the proposed location of the memorial forest to the one who played such a great part in making Independence day possible."

It was high service to the country when Captain Mullan's soldiers, to cut a military road from the Missouri to the Columbia, slashed and burned a way through the green landscape. After them came the pioneers, the miners, with ax and fire to impair the natural beauty of the landscape. Now come the scouts to do their part for restoration and conservation, a service of magnitude to command national attention. - Region 1

HOW WE MAKE EXCHANGES IN R 5

For the past two years a land exchange has been pending with the McCloud River Lumber Company. While this exchange has been pending, and with the consent of the proponent, stumpage to the value of \$9,283.68 has been sold by the Forest Service from the offered land, the money being deposited in a special fund with the understanding that if the exchange did not go through the money would be paid to the proponent.

Now the exchange is consummated and the money belongs to Uncle Sam.

Here is a case where we sold enough stumpage off the offered land before it belonged to us to pay for 3,713 acres of it. - L. A. Barrett

YE EDITOR DISCOVERS

For the first time in Norway's history, a course in forestry for recruits was instituted by the Army last April. Captain J. Dugstad, who has charge of the course, is carrying on the work along lines similar to those used in France. He studied this activity in France ten years ago. One hundred men and seven non-commissioned officers have been assigned to this detail. Most of the recruits are young men from the farms in western Norway, who after taking this course, will return to their farms and it is hoped put into practice what they have learned.

The only contribution by the Government in connection with this work is the recruits' equipment and clothes, the enterprise otherwise being entirely financed by the Norsk Skogselskap (The Norwegian Forest Company) of Oslo, a semi-official institution supported partly by private contributions and partly by funds raised through Government lotteries.

The course will last 48 days; 12 days of this time will be devoted to military training and the rest of the time will be occupied with theoretical teaching and practical work in forestry. It is expected that the recruits this year will plant 150,000 trees, most of which will be Norwegian fir. They will also dig about 15 kilometers of drainage.

As there are about 4,000 recruits who undergo a special training for a few weeks each year, this experiment with only 100 men is just a beginning. If this trial course turns out to be a success, no doubt the number assigned to this work next year will be considerably larger.

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The Omnibus savings bill as passed by the House called for a reduction of 11 per cent in salaries, with an exemption of \$2500. This would produce savings of only \$9,000,000. As the bill was reported to the Senate by its appropriations committee, a reduction of 10 per cent had been made in all salaries, without any exemption. This produces a reported saving of \$121,000,000.

The opinion has been expressed in the Washington papers that the Senate committee's action in making no exemptions from pay cut contemplates adjustment by the conferees after the bill is passed by the Senate. One spokesman suggested \$1800 as the probable final exemption from pay cut legislation. Short term employees are exempted from the literal application of the pay reduction, but another provision carries the implication that corresponding reductions should be made in pay of short term employees and labor forces to about the same percentage. A heated discussion of the whole pay cut proposal started on the floor of the Senate yesterday (June 1) and is expected to continue to-day. The Federation of Federal Employees is reported as taking an aggressive stand in opposition to the action of the Senate committee.

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The U. S. Geographic Board feels that it has been vindicated. Before the Spanish American War, the Board gave the decision that the name of the island in the West Indies was Puerto Rico. After this island became a territory of the United States, Congress arbitrarily changed the spelling to Porto Rico, but this spring reversed its action and restored the Spanish form of Puerto Rico. All official references to the Island should be spelled accordingly.

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Establishment of the Parker Creek Experimental Forest as an administrative withdrawal from the Tonto National Forest in Arizona has been approved by the Forester. This area will be used very largely in the study of erosion and streamflow relationships by the Southwestern Forest and Range Experiment Station. The emphasis in this work will be upon the relationship of grazing to water. Parker Creek lies in the drainage of the Roosevelt Reservoir, and the vegetation is mostly brush, although the area contains some grassland and timber.

Those interested in sun spots may like to know that a Canadian meteorologist has indicated his belief that as we are again approaching a crest in the sun-spot cycle 1933 or 1934 will bring a considerable number of lightning storms throughout Southeastern Canada. This is more or less in line with similar independent studies made by other men in various parts of the country. A year or two of abundant thunderstorms throughout the mountainous regions of the West would do much to restock some of the denuded forest lands. No really adequate summer thunderstorms have been experienced since the summer of 1913.

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Upon presentation of the case for simplification of reports to the Federal Employment Stabilization Board, the Secretary asked for a memorandum which he expects to use in urging the Board either to use the six-year plan submitted last fall for another year or to simplify the revision of the plan so that the work can be done in Washington and the National Forest Regions relieved of this troublesome report job.

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A table inserted in the Congressional Record of May 18 by Representative Woodrum of Virginia shows that reductions in appropriations already made in the house, together with those contemplated, represent total savings of \$563,000,000 for the fiscal year 1933 as compared with the fiscal year 1932. These figures are useful for replying to people who have absorbed the propaganda which claims that Congress is going blissfully ahead, making no reductions in appropriations, and is unconcerned about economy. The Interior Department Bill, the only one which has been finally signed by the President, carries reductions of 40 per cent for 1933 as compared to 1932. Much of the denunciation of Congress for its attitude on economy and reduction of appropriations has no basis of fact.

LET'S LOOK INTO THIS MATTER!

"If the inroads of substitutes continue," declares Fred R. Johnson in an article in the April Rocky Mountain Bulletin, "the forest schools might as well close their doors, and all that will be needed on the National Forests will be a bunch of fire guards to protect watershed values and some nicely uniformed rangers to handle tourists. I am not so pessimistic as to predict that such will come to pass. Wood will continue to be used, and new uses will be found by the Forest Products Laboratory and the lumber industry. It is striking that the producers of lumber are often more enthusiastic than the growers (foresters)." Mr. Johnson presented, in particular, the value of good wood shingles, in their fire resistant qualities, ability to resist hail and wind, and excellent insulating properties. In Las Vegas, where so many homes have shingle roofs it is, the owners state, because they do not suffer damage from hail. The Regional Forester of the Southwestern Region lives in a house made of wood, which he finds easy to heat in winter and reasonably cool in summer. After fifteen years he has supplemented his shingle roof with composition roofing.

R. 3 Bulletin.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT. ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY **** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER.

Robert R. Ross

Vol. XVI No. 25

Washington, D. C.

June 20, 1932

SOME OF THE THINGS THAT WERE SAID AT THE ANNUAL MEETING OF THE
AMERICAN FORESTRY ASSOCIATION AT BALTIMORE, MD., MAY 26-27, 1932

By George D. Pratt, President of the Association

"I hold that protection of our natural resources against fire is an income producing and a self-liquidating project. To my mind it qualifies under the operation of the Finance Corporation just as much as does protection of our banking institutions, for in the last analysis these institutions are dependent upon the natural wealth of the communities and States which they serve. I hold that it would be a wise policy for the States to borrow money of the Finance Corporation to protect their natural resources and that it would be a wise policy for the Federal Government to loan money through the Finance Corporation to the States for this purpose.

"Such a project has many points to recommend it;

"First, adequate protection would employ great numbers of men;

"Second, those employed would be engaged upon work that preserves the capital upon which our basic industries and institutions depend and upon which future employment of labor depends;

"Third, protection of our natural resources is basic to the preservation of our national credit at home and abroad;

"Fourth, knowledge that the States and the Federal Government are by joint effort protecting their natural wealth will promote confidence everywhere;

"Fifth, the project will strengthen the foundation of agriculture and preserve the soil against erosion and against destruction due to erosion;

"Sixth, the project will help to stabilize land ownership and thereby afford some protection to local government against land abandonment and lost taxes;

"Seventh, the project is a necessary corollary of the five-day week in that it preserves the country's recreational land for the profitable employment of leisure time;

"Eighth, bonds issued by the State, backed by the State's natural resources adequately protected, should appeal to the investing public in that the resources through protection increase in volume and value, and

"Ninth, protection of the water resources of the nation would be the greatest guarantee of future prosperity and public welfare which the States and Federal Government could make.

"However much we may argue about the future need for wood, there can be no disagreement about the nation's need for water. Of all our natural resources it is the most vital and fundamental, for without water every industry and every community would be at a standstill. In the confusion of thought that harasses us today, we can hold fast to two facts that carry encouragement and hope. One is that trees continue to grow and the other is that water continues to run down hill. So long as we can give trees a chance to redeem our wild lands and our streams a chance to keep on pouring forth their liquid gold, no one need fear the ability of the American people to successfully cope with the great problem of reconstruction."

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By N. C. Grover, Chief Hydraulic Engineer, U. S. Geological Survey

"Water must always have a prominent place among the natural resources. It is a necessity for plant and animal life and for the production of power, either hydraulic or steam. It is essential for industries and for transportation by navigation. It is widely distributed, even though in varying quantities, and the supply is continually renewed in its essential purity. ***"

"Not alone through its direct use but also by the limitations which the availability of water imposes upon the utilization of other natural resources does water affect the stability of regional and national development. The limits of agriculture by irrigation, the operation of mines, the location of power plants and industrial developments, and even the rates of growth and ultimate sizes of town and cities are controlled by the amount of water available. ***"

"The water power resources of the country have been estimated as 80 million horsepower. More than 18½ million acres of land have already been reclaimed by irrigation and additional large areas will be reclaimed in the future. Irrigation is also practiced on more than a million acres outside of the arid and semi-arid regions. In many regions groundwater is used for irrigation and about 50 per cent of our domestic supply is obtained from the ground. ***"

"One of the most important fields for effective conservation lies in the maintenance of the essential purity of rivers that flow through populous regions. The remedy lies in the prevention of pollution and not in the prevention of use, as rivers must be used more and more as populations increase. The aesthetic and recreational aspects of the use of water are very real. The intangible values are great and should not be overlooked in any appraisal of water as a national asset."

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By Samuel S. Wyer, Consulting Engineer, Fuel, Power, Transportation,
Educational Foundation, Columbus, Ohio.

"America's greatest danger is not from reds, radicals, Socialists or Communists, but from selfish business men who have failed to see the social significance of the forces in our rapidly accelerating machine civilization. If capitalistic society is to endure, then human rights and the welfare of human beings must be regarded as superior to property rights, and we must recognize that social significance and service and not mere money making alone must guide business practices.

"In our water thinking we have had more 'tacit assumptions' and 'dogmatic statements' and less of 'fact finding, fact recording and fact facing' than in any other resource problem. This accounts for the wide gap between current beliefs and obvious facts. ***"

"Our backward-looking and precedent-following lawyers in their obsolete expression of 'acts of God' still blame God for floods. Floods are not caused by the act of an offended

God, but are the result of the normal variation of rainfall over long periods. To intelligent people a flood is not a call to prayer or sacrifice to appease God, but a call to find the facts and face the facts and make man's use of nature comply with nature's own periodic requirements. We will not work out a solution for our flood problems until we stop blaming God and look nature squarely in the face. ****

"Nature always provides a way to meet its own water demands. This has been especially true in the Mississippi drainage basin where wide, low flood areas of land have been provided for the occasional use of flood water, and where the velocity of the flood water, unhampered by man, would be low and would carry relatively little silt with little cutting of the bottom or banks.

"The effect of forests on floods has been greatly over-stressed. We have failed to remember that in a state of nature only about 40 per cent of the Mississippi basin was timber land. The rest was prairie and plains. ****

"The ancient Egyptians showed more intelligence in coping with their water problems than we do with ours today. No Egyptian could pollute the water without committing an offense which not only subjected him to punishment under the civil code but made him subject to condemnation when the God of the Lower World should pass judgment upon his soul. This sound philosophy is carved upon the inner and outer walls of the ancient temples, and pictured upon the halls of the dead.

"Our text books have stressed how 'irrigation may make the desert bloom like a rose' without appreciating that it may not be good business to do so. For 24 projects the average original estimated cost per acre was \$30.57, while the actual facts were that the cost became \$117.94 per acre. In irrigated land we now have ready for use about 50 per cent more than we can actually use. In the face of this over-production situation, the United States Government is taking 165 million dollars as a starter in building the Boulder Dam project to bring still more land under production. ****

"One of the perfectly obvious immediate needs in curbing unemployment is to shorten the working day. This will increase the amount of leisure available for our workers. The recreational aspects of local water supplies in affording sound recreation facilities have a very far-reaching social significance.

"Students of land economics agree that we must abandon much of the land which we are today trying to farm and the intelligent thing will be to revamp our taxation and land owning program so that this unused land can go back into forests. This will rearrange the rural school program and greatly curtail the need of rural roads because much of our rural road program has been for the benefit of selfish business groups without any regard to its real social significance.

"The 'Nation's Business' - official organ of the Chamber of Commerce of the United States, on p. 24 of the February 1932 number, and the 'Engineering News-Record' on p. 284 of the February 25, 1932 number, are striking illustrations of grossly misleading and deceptive information presented to direct the taxpayers' attention from our largest dole to selfish business groups. These articles rest on tacit assumptions that the motor vehicle industry is paying its own way. The facts of the case are that the dole from the taxpayers to motor vehicles for the entire United States was in excess of 1385 million dollars in 1931 - an amount more than 10 per cent of the cost of all government in the United States, and greater than all of the navigation expenditures of the United States Government, for river and harbor improvements, for 105 years.

"For 15 years the cost of government in the United States rose at the rate of over 2 million dollars every working day. That is, every time the sun rose on a working day, for 15 consecutive years, the cost of government was 2 million dollars more than it had been on the previous sunrise. This year we have the astounding fact that over 1/4 of our national income

goes for the cost of government. The Nation cannot live except as this cost of government is reduced and this must affect many of our water problems because we must think of these in terms of the social significance to the public at large rather than the selfish advantage to small groups."

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By George P. Clements, Manager, Agricultural Department,
Los Angeles Chamber of Commerce

"No less an authority than Secretary Wilbur has stated, 'The real conservation problem of the West is the conservation of water. From Nebraska west, water and water alone is the key to our future. We need the mountains, the hills and the great protected back country or we cannot have sufficient water for our valleys'.

"Water is precious over all this great expanse, but with us in the Pacific Southwest and Mountain States it is life itself - and without price.

"Within this latter area, comprising almost 30 per cent of the United States, 7 per cent of the people of the United States produce above 6 per cent of the agricultural production of the United States.

"Of this Southwest empire, 60,000,000 acres are absolute desert, 15,000,000 acres rock outcroppings, half a million acres of coastal sands, 463,000,000 acres in mountain, hill, forest and brush plateau watershed. Upon this watershed 8,841,434 people depend not only for their life, their peace and happiness, but their contribution of one-sixteenth of the food production of the United States. ***"

"Water - not land - is our determining factor in California. It takes 95 per cent of the State's surface to furnish water for but 5 per cent which represents our economic development in agriculture, industry, and commerce. The husbanding and harvesting of the raincrop is therefore our greatest responsibility.

"Upon the health of the watersheds of the State depend the health and permanency of California's economic structure, particularly that of agriculture. These watersheds, well-clothed in timber and brush, are her only security for her agricultural, civic, and industrial development or the present important position she has assumed in all three. ***"

"From a few shiploads of hides and tallow in the early 50's we have come to the first place in agricultural producing wealth - from a handful of people to above five and a half millions in 1932. Count it in population, wealth or human happiness, water is the most precious, most valuable, most necessary possession we have. Our entire investment, billions of dollars, in wells, reservoirs, ditches and dams; billions in agriculture, industry and civic development; our peace, happiness and prosperity, are all dependent upon water, and water upon the health and wise administration of our watersheds. It is no longer a question of individual or interest - it is to save the nation, its life on one hand, its wealth on the other.

"The watersheds must be nationalized and selfish interests, political or individual, must bend to national need. ***"

"The watersheds of the nation must be nationalized, administered and controlled for the good of the nation. A few trained executives at present administer the National Forests under the Department of Agriculture. No other government department is concerned in conservation, and no other government department has the organization to care for it. Forests, grazing lands, National Parks, unappropriated public domain, and Indian Reservations are all watershed, all governed by the same physical conditions, and should all be placed under one administration. There is no reason or sense in a continuance of our present destructive, haphazard policies or lack of policy."

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By William S. Conant, Water Resources Committee, American
Engineering Council, Washington, D. C.

"This morning's session has emphasized the enormous importance of water conservation and control. The duty has been allotted me to outline some of the difficulties which complicate the plans which have been suggested for the better handling of water questions. Water is wanted in quantity for beneficent or profit-making purposes but when this same water suddenly appears in appalling quantities everyone wants it promptly carried away down stream. There necessarily arises a set of jarring interests each with conflicting demands which government authorities have thus far failed to reconcile. ***"

"The underlying reason which makes the status of water rights and privileges so difficult to adjust and to adjudicate lies in the physical fact that water has such a multiplicity of beneficial uses although when unrestrained in volume it becomes a social menace. It is this realization which leads logically to the conclusion that the ultimate unit of water control must be the drainage basin. The drainage areas of some of our streams lie well within certain State borders and the disposition of the flow-off water may properly remain a State prerogative. But with the junction of rivers come joint responsibilities of States, conflicting claims and threatened damages. In order to attain full utilization of our water resources, some system of joint control must be evolved, based upon more uniform State water laws and guided by such general Federal legislation as is found necessary to insure interstate co-operative action. The present entangled situation is partly due to the passage of arbitrary legislation at both state and National capitals on which legal interpretation has not been forth-coming. ***"

"The ideal control of water in any drainage basin is that which permits the maximum economic hydro-electric output consistent with equally necessary priorities for domestic and municipal water supply and sanitation as well as for food production through irrigation. It should also permit a control which allows for the practical needs of stream navigation and for the occasional demands of flood protection against loss of life and property anywhere at lower levels. The element of recreation in the open and of the development and maintenance of natural beauty is a matter of growing importance. Over an increasing area scenic beauty is actually worth more in real estate than is fertility.

"In order that none of these desirable ends may be neglected, each project of development should constitute one of several elements of a complete plan for any drainage basin based upon potential water values. Each basin should have its predetermined relation to adjoining drainage areas and to the river or rivers outflowing, all founded not alone upon engineering but upon economic data. ***"

"The control of large drainage basins involves the participation of the Federal Government, either through some form of planning commission or through the legal extension of present prerogatives, because the waters released over a State boundary may have either monetary value or damaging effect depending upon their volume at a given time and these values and damages exceed the range of State jurisdiction. Doubtless the ideal solution, at any rate from an operative standpoint, is found in complete Federal control. Some engineers and political economists are willing to sacrifice whatever benefits accrue from decentralized authority for the sake of simplicity in the controlling mechanism. An excellent case may be made for this view, assuming a benevolent disposition of the power exercised by the Federal Government. The practical difficulty in this position is that at present authority is lacking beyond what is known as 'navigable waters' and that the States actively resent what they consider encroachments upon their rights. Mention should be made of that intangible force - public sentiment which supports the States in their contention for the right to regulate the water resources within their own boundaries. Nevertheless the problem of adjustment extends

and will continue to extend beyond these limits and the Federal Government, until granted more power, should at least be given a wider scope to use its technical facilities, its statistical information and its national viewpoint in the reconciliation of State interests, as well as in the planning of the predominant features of stream flow for the voluntary co-operation of the States. ***"

"The effective control of water resources must ultimately be achieved by means of prepared legislation - Federal and State - of such character as will define mutual rights and functions and will not be liable to disqualifications by the courts. Thus far there has been no legal confirmation of such rights as may have been conferred by Congress to control stream waters above the head of navigation. There has been no authoritative definition of 'navigable waters' by which to delimit Federal interest in stream flow. There has been no effective suit before the Supreme Court to define the extent, if any, of water control rights "implied" in the Interstate Commerce clause of the Federal Constitution. ***"

"Public works and private enterprises will for an indefinite time continue to open river channels for navigation, to by-pass obstructions and to connect upper stream waters by canal systems. Sometimes a project will close navigation thus lowering the border line unless locks are installed. Under any strict and conservative interpretation of Federal rights in water control, the States come into paramount control above this impermanent point on every stream. How far the Federal Government can go under its 'implied powers' in Article I, Section 8, Paragraph 18 of the Constitution of the United States, is not as yet legally defined. However, Federal activities have proved valuable to the States which have no Water Commission, or similar board, in adjusting interstate rights and privileges and also in arranging compacts and compromises which affect intrastate waters. ***"

"As to the Federal Government, there is obviously room for a wide difference of opinion regarding developments. The view is certainly tenable that the Government may be obliged to content itself with duties consistent with a strict interpretation of its constitutional powers. It may prove impossible during this period of years for the Federal Departments, bureaus, and commissions to coordinate their technical work and plans, to assist in the formulation of interstate treaties for mutual benefit, to regulate the development and audit the expenditures of major hydro-electric projects which extend beyond State lines, and to administer Federal responsibilities in flood control, irrigation, reclamation, and drainage owing to the lack of a well defined national policy and to the conflict of Federal and State jurisdiction over water power. ***"

"Interdepartmental conferences and co-operation have grown most helpfully in late years, but the contacts with State authorities would become less complex, delays be shortened, and State practice tend to uniformity were it possible to deal with one office in Washington authorized to handle all questions relating to Federal interests in water resources."

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By Reed W. Bailey, Professor, Utah State Agricultural College

"Under climatic conditions of the Intermountain Region the maintenance of soil and vegetation on the steep mountain slopes constitutes a delicate balance. For ages accumulation of rock waste and soil has exceeded their removal, and has been accompanied by development of plant cover. This balance has been maintained for thousands of years. It has been broken in certain canyons by depletion of the plant cover and litter even on small areas, which made possible the gathering of destructive flood waters. These floods constitute a greatly accelerated rate of erosion."

YE EDITOR DISCOVERS

As the Omnibus Bill was reported by the Senate Committee to the Senate it included a paragraph which authorized and directed the President to proceed at once to reorganize Federal agencies and bureaus dealing with certain specified activities, among them naming "conservation." The group of activities specifically mentioned was not subjected to the requirement elsewhere in the bill that reorganization proposals developed by the President be referred to Congress before being put into final effect.

In considering the economy bill on the floor of the Senate the word "conservation" was stricken out of the paragraph providing for immediate reorganization without reference to Congress. Any reorganization of conservation bureaus would therefore be reviewed by Congress before becoming legally effective.

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The first action of the Senate on reduction of Federal salaries was to approve the recommendation of its committee for a 10 per cent cut in all salaries, with no exemption except that the salary of employees receiving less than \$1000 would not be cut. On June 8 the Senate reconsidered its previous decision and voted, 38 to 35, to substitute compulsory furloughs for the pay cut. The 30-day annual furlough would apply to all employees receiving more than \$1200 per annum. On motion of Senator La Follette it was voted that no Federal employee should be furloughed more than five days in any one month without his consent. On June 9, the Omnibus bill went to conference, with Senate and House conferees attempting to iron out discrepancies between the House and Senate versions. What the final outcome would be was still uncertain as the Service Bulletin went to press.

Numerous inconsistencies existed in the Omnibus savings bill as passed by the Senate. For example, a previously adopted provision authorized Department heads to furlough workers indefinitely to keep within appropriations. This would apparently be in conflict with the La Follette amendment. A previous provision restricted annual leave permanently to 15 days per annum. The President's furlough proposal abolishes all annual leave with pay. These and other differences between the Senate and House bills will now have to be adjusted in conference. The House provision of pay cuts was a 11 per cent reduction, with a \$2500 exemption.

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Those who live in the West under semi-arid conditions seldom realize how important drought may be in regions where precipitation normally occurs throughout the entire year. A drought equal in intensity to that which was felt 2 years ago throughout the central portion of the East is being experienced in the Georgia and Florida region, where the great bulk of the turpentine industry is centered. How severe the drought is may be realized by the fact that the Okefenokee Swamp in Southern Georgia is practically without water for the first time in the history of the country. It is now possible to go on foot through many portions of the swamp which heretofore have been absolutely impassable. The drought is having a very serious effect upon tree growth in this region, as many trees are dying and many of the trees which are being worked for turpentine have started to "dry face." Dry facing is a term used to describe stoppage of resin flow and the impregnation of the wood with pitch that does not exude on the wounded face. Trees that are being heavily worked apparently succumb quicker than trees conservatively wounded. Drought such as that of the past few years has had a marked influence upon the distribution of species. It is not at all improbable that this extended drought in the Southeast may determine the distribution of such species as slash pine, which is usually associated with rather moist soils.

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Ranger L. W. Rogers of the Santa Fe National Forest in New Mexico has made an interesting series of observations on the porcupine in the Southwest. Unlike Biological Survey men, he believes that porcupine do not migrate but that they spend the bulk of their lives in relatively short distances of the place where they are found. He bases his conclusion on the fact that while there are porcupines in the alfalfa in the lower country during May one will also see more porcupines at the higher elevations than at any other time, and that he has seen porcupines at an elevation of 7,300 feet and the same day killed two porcupines at an elevation of 10,500 feet and gone through two feet of snow on the way. It is also a known fact, he says, that the porcupines are in the foothills on January 1, at elevations ranging from 7,000 to 8,000 feet.

One of the interesting things that Ranger Rogers brings out is that the porcupine feeds on succulent vegetation. He has found porcupine eating young, tender alfalfa and various other vegetation such as strawberry plant, Senecio, Sego Lily, June Grass and some Blue Grass.

Ranger Rogers's observations may have an important bearing upon the porcupine control; so that we should be glad to have additional information from the field whenever an opportunity is offered to obtain it. Incidentally, Ranger Rogers may have discovered the presence of two species of porcupine in a region where only one is supposed to have existence.

The program conference for the Forest Products Laboratory is now under way at Madison, and Messrs. Clapp, Betts, and Roberts have left Washington to participate. At this session the program for the coming fiscal year will be gone into thoroughly in an effort to make the work done by the Laboratory meet most effectively national needs in wood utilization.

Ripley Bowman, Secretary of the Timber Conservation Board, passed away in Washington on June 9 after an illness of two days. While with the naval air service during the World War he fell 4,200 feet in making an aerial survey at Hampton Roads, Virginia, receiving injuries which kept him in ill health for the remainder of his life. He was appointed Secretary of the Timber Conservation Board when it was organized a little more than a year ago.

WHITE-PINE WEEVIL ATTACK ON SCOTCH PINE

Scotch pine is a common or an occasional host for the white-pine weevil (Pissodes strobi Peck) but the injury generally is slight. A greater amount of damage is done to this species by squirrels and climatic disturbances - both causing injuries sometimes mistaken for weevil injury.

The so-called "Riga" strain of Scotch pine which has been planted rather extensively throughout the Northeastern States in recent years apparently has the ability to withstand attack by the white-pine weevil. Study of 19 plots in plantations in New York and Massachusetts showed that the number of leaders, dead because of weevil attack, was very much less than the number in which eggs had been laid. In all 3386 trees were examined; 1110 of these had been attacked in some degree of severity, but only 39 actually died. This was only 1.15 per cent of the total number of trees. - Northeastern For. Exp. Sta. Technical Note.

REFORESTATION IN SCOTLAND

The famous deer forests of Scotland, which have but a scant timber growth, are doomed in the ambitious plans of that government to plant new forests. About 500,000 acres are already set aside for reforestation, and a Glasgow forester recently visited the United States to study our methods. During the World War about 150,000 acres of timber in Scotland were cut down to supply lumber for war purposes. That area is also being replanted with trees. -R. 3 Bulletin.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Thos. Roosevelt

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THE TREND OF THE TIMES IN FORESTRY

By Willis M. Baker, Central States For. Exp. Sta.

Students of economics will do well to keep in mind the horrible example of the poor shepherd who became insane trying to figure out which way to turn his square quilt. Our present blanket of depression, with its intricate pattern of changing economic conditions, is likely to prove equally confusing to some of us. Certain portions of the design may so intrigue our interest that we soon lose all sense of proportion and relative values. Then, indeed, are we lost. I make no pretense of a knowledge of economics, and hesitate to express an opinion on such a complicated subject as "the trend of the times in forestry." However, there are one or two trends which appear so obvious, that it may be in order to mention them.

In the past, foresters have preached about the approaching timber famine; today, many of them, confused by the present depression of over-production and declining prices, can see nothing ahead but a timber surplus and glutted markets. This pessimism undermines their faith. The true course of forestry is undoubtedly the middle ground between these extremes; we are gradually but steadily exhausting our forest resources, and at the same time vast areas of land are left not only unproductive, but in condition to endanger the public welfare. Economic production and utilization of timber is unquestionably the foundation of our forestry program. We must expect the fluctuations of prosperity and depression that have always existed in every business. However, the trend of the times seems to demand adequate consideration of those so-called intangible forest values that have been mentioned but not fully appreciated in the past: the value of forests for flood and erosion control, for water conservation, for waste land utilization, for the preservation of wild life and public recreation.

This nation has passed through two periods of its history: the pioneer era and the era of exploitation. Both of these periods have been characterized by the opportunity for individual action, and by an exaggerated conception of the rights of the private operator. Not until recently, with the increasing complexity of our civilization, has it been clearly recognized that the actions of the individual must often be restricted for the common good. Furthermore, we have come to see that our era of destructive exploitation must be followed by efforts toward conservative reclamation. Reclamation under public control seems to be the trend of the times, and this movement will have a most vital effect on our forestry program.

Private forestry has been attempted in this country without much evidence of progress,

nor is it ever likely to be adopted by private interests on a large scale, except locally here and there under unusually favorable conditions. The chief reason for this is that the profits of growing timber for utilization, when the long period of time and the risks involved are considered, are not generally attractive to private capital. Of course, there are and will be many exceptions, as in the case of the woodlot and small holdings, or large properties favorably located. But in general the private owner is not able to cash in on those intangible values which make the ownership of forests not only attractive to the public, but necessary.

The entire world seems to be moving rapidly toward increased public participation in all fields of human activity. Call it socialism if you will. Witness the extent to which Federal, State and local governments in this country now engage in or control activities of all kinds, wherever the interests of the public are endangered by unrestricted individualistic action. Note the expansion of these public activities within the past twenty five years. Even the radical of yesterday hardly dared to dream of such a change. Whether we like it or not, it is an emphatic trend of the times.

The conclusion of this paper is that the basis of our future forestry program will be public control of forest areas wherever the public's interests in reclamation and conservation must be safeguarded. Private forestry must be considered as a minor and supplementary part of this program. The value of timber as such is only one of the many considerations of forestry and must take its proper place with the important intangible values.

A SMOKECHASER'S PERAMBULATOR

By John B. Taylor, R. 1

One of our biggest problems is to provide housing for men needed in a large number of places, chiefly for protection but often for administration as well. Also the places where men are needed are often not the same from year to year or even from week to week. Tent camps are our present method but they are never fully satisfactory. There is little comfort in a temporary tent camp and most of us will go to any length to avoid one if we can.

I have often thought that we could provide cheap, handy, and comfortable camps capable of being moved from place to place on a trailer and which would provide for stationing men quickly at any place needed along roads. Most of our forests are now fairly well along with their road programs and a large number of our protection men are stationed on roads. Also most of these roads have a telephone line along the right of way. Why not then have our smokechaser stationed on wheels so that we can place him where he is most needed to meet conditions as they are at the moment, - not as they were when his station was built?

To make such a system workable we should first obtain a group of three or four running gears or chassis and wheels of old autos or trucks that are alike, so the same rims or wheels could be used on all. These should be worked over at a central warehouse or workshop in order that the same set of tires will serve for all. Then build on these a small compact, comfortable structure that will house two men. Perhaps 7 x 10 feet with built-in fixtures would be ample, keeping in mind the greatest strength with the least weight.

The shopwork needed to repair, strengthen springs and frame, and provide a short tongue or trailer hitch should not be very costly. The structure itself might even be kept at a cost less than the average cabin. A few other details would add some to the cost but should be provided to make for quick setting up and handling of the structure. These might include two sets of supports like sawbucks to be set under the structure on planks at each end, high enough so the wheels hang free for removing rims or wheels and tires when the

structure is set. Hooks should be provided on the frame to hook over the axles before the structure is jacked up and put onto the supports. This is to hold the wheels up so they do not just hang on the springs. Also the steps and a folding canvas toilet with a loose box seat would be provided.

Equipment needed for a set of such structures is a truck heavy enough to move them, a set of rims or wheels with a spare that will fit each and all in a group of three to five, a jack and a few blocks for use in setting the structure.

We would then have camps that could be moved intact and quickly set up at any point. If they were put at the point where poles are to be got out for the phone line, where road work is to be done, where a new stream has been opened for fishing, our worries would be over.

One of the greatest advantages of a moving station, if it is also equipped with a loud ringer, is that you can so place it as to realize a full season's work from every smoke-chaser. You may have in mind a number of danger spots along a road or a number of camp sites to be cleaned up and cleared. If you could station your protection man a few days at each place, he could clean up many hazardous places in a season. It would seem that we could in this manner provide for instant and handy moving of protection units as well as be in better position to take care of short duration danger points and to provide for changes in conditions. In fact we might even plan our smokechaser positions to conform with our rain maps!

Oh yes, that reminds me, I want to put in my bid right now to the Supervisor to have Trailer Camp #4 spotted near that duck pond we visited last year. Won't that be handy when fall comes? -

From R-1 Bulletin

ANOTHER DOG CASE

By H. O. Stabler, R. 7

D. R. Gaudineer of the Greenbrier District of the Monongahela reports the following interesting and successful use of bloodhounds:

"Last November one of our constituents, looking forward to a hard winter, decided that a short job as firefighter would provide him with the necessary shekels to clothe himself more adequately for the rigors of winter. Suiting his thought to action, he picked a nice dry south slope covered with dead and equally dry forked fern about three quarters of a mile below our highly prized Abes Run plantation, of which there are nearly 200 acres, thinking no doubt he would get the few survivors of the 1930 drought along with the 96 M trees planted this spring.

"The smoke was discovered quickly by our hawkeyed lookouts and in less than no time our suppression crews were speeding to the rescue. Twenty men and the short November afternoon kept the fire down to twenty acres.

"The following morning the Supervisor sent for the bloodhounds owned by Mr. Radford of Staunton. He was met by the Ranger and Deputy Sheriff and all proceeded to the scene of the fire. The bloodhounds on being taken from the car were very ambitious, hardly giving their handler time to adjust his two guns. They at once struck a hot trail and tore down the trail on the fresh tracks of the fire crew.

"Being fully aware that the fire crew was there, we managed to get the dogs off the scent and took them up a hollow that seemed the most logical way out for the fire bug. The dogs were taken up one side and down the other without success. On reaching the mouth of the hollow, the Deputy Sheriff and Ranger went off to one side to examine some fresh horse tracks that looked promising. While so engaged, the hound man and his dogs strayed up through the brush across the hollow.

"A loud baying and a shout proclaimed that something had happened. The Ranger and Deputy ran toward the place the sound had come from, but on their arrival found nothing. However, another shout way up the ridge started them off at a tangent. When they arrived at that point another call much farther off came from another direction. Having about decided that the hound man was a ventriloquist, they cut up across the top of the ridge and were rewarded by the sight of the hounds pulling their handler at a rapid rate through a tangled mass of devil's-club, locust reproduction, and blackberry briars.

"After crossing the ridge the trail was through open country and followed an old path, thence to a small cabin. Here the dogs trailed around the spring house and the porch. Inquiry proved the man of the house had gone to town and that also one Ivy Arbogast had been there just after the fire started. The trail continued about a half mile further to a farm house where several men, boys and a woman looked on with astonishment. At this time several shepherd dogs came running out and became entangled with the lead chains and the hounds. Our friend Ivy was asleep on the porch, but was awakened to make the acquaintance of the hounds. At first they paid little attention to him but tracked him to where he had been asleep and then back to where he was standing. Very little trouble was had in securing a confession and the triumphant return march was started.

"Since September 23, Arbogast has been a guest at the Pocahontas County jail which is a nice, up-to-date county jail though a little over-crowded. It developed that he was quite a popular young man as the authorities in Pendleton County have inquired for him, as well as the Post Office Department, and it appeared that Ivy would remain the guest of our genial Uncle Sam at one of his winter resorts for some time to come.

"When Ivy was brought before Federal Judge McClintic, Southern District of West Virginia, he pleaded guilty of setting the fire and in his confession stated that he had been hired to set the fire by some other residents. This information will probably lead to other arrests.

"Ivy was sentenced by Judge McClintic to two years and a trip to Atlanta for the purpose of completing his education."

Doubtless the impression is held by the public that a bloodhound is a fearsome and sanguinary sort of brute. As a matter of fact, they are mild mannered and make nice household pets. R. W. Shields, better known in Region Seven as "Jimmy" or "Master of the Hounds" vouches for the accuracy of the following incident: It seems that several years ago a colored prisoner escaped from a road gang in North Georgia. Two dogs that were trailing him slipped their leashes and when next heard of the prisoner was peddling one fine dog on Peachtree Street in Atlanta, having already effected the sale of the other dog.

COLORED WOOD

John James Meily, American Consul at Hamburg, Germany, reports upon the German process of dyeing living trees to produce colored wood.

The feasibility of introducing coloring matter into the sap circulation of living trees and other plant life has long been known but it appears that until recently no practical application of this discovery had been attempted.

A secret process has been developed by a German concern (Luders Farbbaum Industrie, Wahmsstrasse 55, Lubeck), which now makes it practicable to dye or color both the leaves and wood of living trees and thus obtain not only highly unusual and fantastic foliage effects but, it is claimed, wood of any predetermined color and shade. Through the introduction of certain coloring matter into the sap circulation of the living tree, the cellular texture is so completely filled that the wood of both trunk and limbs acquires the same tint throughout, and, when cut into lumber, compares favorably with natural colored cabinet woods such as manogany, rosewood, and ebony.

It is also claimed that by introducing various colors into a single tree in a certain manner, probably at different times, intervals, and for longer or shorter periods of time, mottled or "marbled" effects can be obtained, and trees so treated yield lumber that is uniquely adapted for cabinet and turned woodwork.

Details regarding the process and its application are closely guarded, but it is understood that the "inoculation" or the introduction of the coloring matter takes place in the spring and summer when the sap is rising and that the treated trees are felled soon after the dye or coloring matter has been introduced. It is believed that the injection must be so made as to pierce the bark as well as the food layer or phloem in order to reach the inner xylem layer which carries the sap up from the roots through the stem into the leaves.

The advantages claimed for the new process are that relatively low-priced native grown woods, such as alder, birch, beech, and maple, can be colored at slight expense and that lumber cut from such wood compares favorably with the more expensive exotic cabinet woods; that the natural grain is not dulled or obliterated as when stain, paint, or lacquer is applied, and when objects made of such wood are to be repaired or finished a new coat of varnish is all that is necessary to revive the original beauty of the grain and color.

Wood stained or painted by the usual methods is said to appear dead and lifeless compared with wood treated by the new method. It is also claimed that wood treated by this process is not attacked by worms and wood destroying insects.

Pennsylvania Dept., of Forests and Waters Service Letter.

ANOTHER CHEMICAL BUBBLE PUNCTURED

Assisted by Behre, Tillotson, Westveld, and Jensen, Stickel tested the suitability of Fire Dust for forest fire control work. Tests with this chemical were made on grass fires having a fifty-foot front. The Dust was applied to the flames with a portable dusting machine having a metal delivery tube about 4 feet long. In the opinion of those present during the experiment the extinguishing effects of the chemical were entirely negative. It only momentarily extinguished combustion at the place being treated and did not prevent the occurrence of flare-backs. Fine soil appeared to have as good an effect or better than the chemical. Water was far superior to Fire Dust both in effectiveness and speed.

Monthly Report Northeastern For. Exp. Sta. April 1932
N.B. "Fire dust" is a proprietary compound highly recommended by the advertising of those sponsoring it. The trial above noted is the first of a series to be made by the experiment stations. In the meantime, the Forest Products Laboratory is attempting to discover wherein the supposed efficacy of this compound lies and why. The use of chemicals in fire control has been repeatedly suggested, in fact hardly a week goes by without some new or old chemical being called to attention. However, the prospects of finding a really effective and cheap agent to take the place of water or of earth do not appear to be overly bright at present. - E. N. M.

MORE DATA ON UNDERSIZE TREES

Forest Products Laboratory logging and milling studies show that in any lumbering operation there is a minimum size of tree which just pays its way through the mill; smaller sizes are cut at a loss. Not only is it more costly to handle small trees than large ones, but the lumber sells for less per foot when cut. Analysis of studies recently completed on this subject gives the following smallest sizes that should be taken for maximum immediate profit per acre logged: in Arkansas second-growth forest shortleaf and loblolly pine, 12 inches; in Louisiana old-field loblolly, 15 inches; in Virginia second-growth forest loblolly,

12 inches; in North Carolina old-field loblolly, 11 inches; in Texas and western Arkansas virgin shortleaf, 10 to 14 inches, according to type and age of stand.

To insure a profitable second cut in the relatively near future, the commercial operator should work to larger minimum diameters than the above. - The Log of the Lab.

YE EDITOR DISCOVERS

The House and Senate conferees on the Omnibus savings bill are at this date (June 20) deadlocked so far as the provision regarding Federal salaries is concerned. It is said that the conferees have come to a virtual understanding on the other items of the bill. If agreement is not reached shortly on the furlough-pay out issue, it is probable that the conferees will ask for new orders from the House and Senate.

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Present prospects are (June 20) that the Agricultural Appropriation Bill without the special Senate ten per cent cut will be approved by both houses of Congress. The probability that this will happen has seemed great enough to justify the sending to Regional Foresters of tentative allotments for the fiscal year 1933, which will be confirmed if the bill passes in its present form. This advance notice as to probable allotments from different appropriations should relieve somewhat the confusion and inability to make financial and other plans due to delay of congressional action on the appropriation bill.

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Modernization in building 35 or 40 years ago meant something quite different from that of the present-day idea. Instead of the influence which the architecture of the present-day skyscraper, with its substitutes for wood, has on our modern homes, the ship's architecture influenced the modernization of homes some 35 years ago, as evidenced by the following item appearing in the Scientific American of July 1894.

"Why Not Remodel the Old Home?" Modernize it, and introduce a few conveniences to the interior, removing objectionable inconveniences, and in their place substituting interior woodwork, fittings, and furnishings.

"Among some of the improvements, for instance, would be a sliding door, to replace an old swinging one; a new staircase that would widen the hall, mantels that would be appropriate for each room. Among designers and furnishers who may well be consulted in such work are the celebrated steamship and car builders, the Harlan & Hollingsworth Company of Wilmington, Del. They create artistic interiors, and from the experience of years in utilizing space to the utmost the development of a department devoted to the remodeling of house interiors is the natural result of the growth and progress of the business of that company. The scope of this department also includes the interior hardwood finishing of office buildings, hotels, and residences."

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The National Forests have been given generous space in the 1932 editions of the American Automobile Association tour books. The descriptive sections of those which cover National Forest regions look in places almost as if they were Forest Service publications. There are special paragraphs describing a large number of the Forests and warnings to forest travelers to use care with fire. Material on the Forests was prepared for the A. A. A. by the Editorial Division of the Forest Service, and not only has the Association furnished this

fine publicity but it has also written us a very cordial letter of thanks for our cooperation in bringing the material together. It is expected that next year's editions of the maps and tour books will contain even more National Forest material, as some of the information prepared this year was completed too late to be used.

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One of the weather and fire theories is that wet winters and springs are likely to be followed by an unusual number of lightning fires, with a strong tendency toward "bunching." This theory is supported in the occurrence of 60 lightning fires in the Mount Hood National Forest during a recent storm. None of the fires got away.

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The California Forest Experiment Station has been endeavoring to find some way of eliminating rodents from areas in which it is studying seedling establishments. Recommendations from the Biological Survey were that naphthalene moth balls might be effective in preventing the rodents from locating the seed. Consequently several seed spots were sown with a mixture of moth balls and sugar pine seed. In reporting upon this the Station remarks that it is seldom that an experimenter is favored with such quick and positive results. Two hours after starting this experiment the results were ready for publication. The rodents had thoroughly analysed the data and had rejected those which did not conform to their liking. Even the moth balls that remained were tooth-marked; some were even worn out with handling. Some perhaps have been stored away for some future rainy day in the rodents' households.

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The new address of the Northeastern Forest Experiment Station is 335 Prospect Street, New Haven, Conn.

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Herbert N. Wheeler, Chief Lecturer of the Forest Service, has been presented with an honorary degree of doctor of science by Milton College, Janesville, Wis. Wheeler graduated with an A. B. degree from Milton College in 1897. He received his master's degree from the University of Colorado in 1902.

R-4 FIRE TRAINING CAMPS

Regional Forester R. H. Rutledge recently spent two weeks at the fire training camps and reports that they were a complete success. Good progress was made in analyzing the fire jobs and in presenting the work in logical steps, making it understandable by trainees and much clearer to trainers. The most important demonstrations were those pertaining to line construction. Speed in this work was stressed and the narrow trench, when construction is by hand, was very thoroughly discussed and demonstrated. Along this same line, the demonstration of the construction of trenches by plows was very complete and satisfactory. There appears to be no reason to doubt that probably 80 per cent of all fire line in Region 4 can be constructed by plows working either day or night and at a cost lower than that by hand and at much greater rate of speed. - R. 4 Bulletin

EXTRACT FROM THE CONGRESSIONAL RECORD, JUNE 15, 1932

MR. BANKHEAD. Mr. President, I should like to know whether there is any way by which this entire bill (The Agricultural Bill) can be reopened? It passed the Senate at a time before we undertook our economy program, before the 10 per cent reduction was applied to other bills, and, in my judgment, there is more room for saving in this appropriation bill than in any measure which has been before the Senate.

The PRESIDING OFFICER. In the opinion of the present occupant of the Chair, the conference report must either be accepted or rejected in its entirety.

MR. BANKHEAD. There is no way, then as I understand the Chair, by which the bill may be reopened. Suppose the conference report is turned down and rejected, then, can the bill be reopened?

The PRESIDING OFFICER. Only in so far as the conference report relates to items which have not been agreed to. The Senator from Alabama may not be aware of the fact that a previous conference, representing a partial agreement, has been presented and adopted. Therefore, in so far as those items are concerned, that portion of the bill is beyond the further control of the Senate.

MR. BANKHEAD. I had hoped that there might be some parliamentary way by which we could again consider the items of this bill.

MR. McNARY. Mr. President, let me advise the Senator from Alabama that the agricultural appropriation bill has been cut a larger percentage than has any of the other supply bills; as compared with the appropriations for the present year the cut has been 34 per cent.

MR. BANKHEAD. Even assuming that to be true, Mr. President, I went over the items in this bill when it was passed, and, while it has been a long while ago, I think there is ample room for cutting 10 or 15 or 20 per cent more from this bill if those who are really interested in the subject of the reduction of the cost of government will make the effort. I should like to have an opportunity to bring about such a result.

MR. NORRIS. Mr. President---

The PRESIDING OFFICER. Does the Senator from Alabama yield to the Senator from Nebraska?

MR. BANKHEAD. I yield.

MR. NORRIS. The senator referred to the agricultural appropriation bill having passed before the Senate started out on its economy plan by reducing appropriation bills 10 per cent. We have already gone back on that plan, I will say to the Senator, because we refused to apply it in the case of the Army appropriation bill.

MR. BANKHEAD. That was not done with my consent.

MR. NORRIS. Nor with mine, either.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT. REPLATER

Theodore Roosevelt

Vol. XVI No. 27

Washington, D. C.

July 5, 1932

CAN WE HAVE BETTER TROUT FISHING IN THE FORESTS?

By Huber C. Hilton, Medicine Bow

Mr. Edward R. Hewett, in his book, "Better Trout Streams," presents many interesting points in reference to fish production, which are applicable to National Forest conditions. Hewett is a native of New England and has spent many years and a considerable amount of money in the improvement of fishing conditions in streams upon an estate owned by him, as well as upon other waters of that region.

His theory is that the decrease in good fishing is due to the advertisement given the pleasures "of the great outdoors by the sporting papers and daily papers, while the automobile has brought remote streams within reach of the city dweller. At the same time, tackle and methods of fishing have been so improved that even those of ordinary skill catch many trout, where they would have taken few some years before."

The book is an attempt to give what is known to be of value in stocking methods and the care of streams and waters, and is based on about fifty years of study in the eastern United States and Europe.

Granite water streams "have much smaller and shallower pools and fewer hiding places than streams in a slate and shale region. Freshets in slate streams are often very destructive to both fish and insect life, due to the turning over of the flat stones and scouring of the bottom. This is not true in granite streams. After a freshet the bottom of the pool is generally found to be entirely clear of algae. Streams in a limestone region are likely to have deep pools and usually have more vegetation than granite or slate streams and are therefore richer in insect life."

P. R. Needham, Instructor in Fresh Water Biology at Cornell University, reports, according to Hewett, that trout normally derive their food from two sources, the stream itself and the land adjacent. The stream supplies myriads of aquatic insects, larvae, crustaceans, and other animals. The land supplies animals and insects which fall into the water. The former foods are available for trout at all times and the latter are only abundant in the streams during the summer months. It was found that May flies, caddis flies and two-wing flies made up practically 70 per cent of the food consumed by trout in eastern United States. He also reports that over one-half, or 56 per cent, was of aquatic origin, consisting of insects and other animals that normally live in the water. The remaining 44 per cent were largely land insects which had accidentally fallen into the water. He also reports that

the riffles are the larders of the streams. A riffle is generally shallow, with swift water flowing over gravel bottom, where many fly nymphs, caddis larvae and pupae, beetle larvae and fly nymphs live in great abundance. Fly larvae are found in great abundance in the pools. By measurement, the riffles are five times richer in food than the pools. Stream beds in which aquatic plants were growing were found to be over seven times richer in food than stream beds which are bare of vegetation.

Hewett considers the number of trout in a stream to be a question of biological balance, and the most disturbing factor, of course, is man. A small upset can have a most serious effect on trout population, as is shown when virgin streams are first fished. The early anglers find the stream teeming with trout, but in a few years the numbers are greatly reduced, the average size grows less and the fishing rapidly becomes poor or ordinary. With the advent of man, large numbers of breeding fish are removed and animals and natural destructive agencies continue their uninterrupted way. Trout get their growth in six years, and if 1/6 of them are removed each year, it means a reduction in the average growing time of one year. Trout get the bulk of their weight during their 4th, 5th, and 6th years.

The author states that in addition to an adequate supply of water, this should not become too acid and temperatures should not exceed 72 degrees for brook trout and 67 degrees for brown trout. He states that a trout cannot live where the velocity of the stream is over 200 feet a minute. They stay in water going at the rate of 150 feet a minute, if the bottom is covered with fairly large stones, but prefer water less than 50 feet a minute. More trout are found in the pools than in the riffles, although food is less abundant in the pools. The reason is that trout prefer the pools for protection from their enemies. The acidity of the water is a very important factor in the success or failure of a trout stream. The author refers to the P. H. value, which means the relative amounts of positive hydrogen ions in water. He reports that trout become sick at a P. H. value of 5.8 and will die if kept at a value of 5.6.

The author has demonstrated the value of construction of dams across streams, stating that it takes about three years for a new pond to get its full quota of insect life and vegetation. The dams serve also as hiding places for trout, and fishing conditions in streams tested improved rapidly both in size and number of fish. Various types of dams have been built, including rock and cement dams, as well as rough log dams, and those built with the use of fence wire to hold rocks and soil in place. He particularly calls attention to the value of beaver dams in stream control and in increasing the number and size of trout.

Mr. Hewett experimented with the placing of water plants in the streams, but without much success. Although watercress was successfully introduced, it does not thrive in swift water or at any great depth. In ponds, lilies, wild rice, water celery and numerous water weeds will grow. Fresh water shrimp have also been introduced into streams. While the introduction of plants and insect life is difficult, there are always plenty of native species of insects which will make use of the native vegetation, if the stream is given proper protection. Ponds formed by dams are soon occupied by native vegetation.

Experience in raising fish in rearing ponds shows that not more than 10,000 fry to the acre should be put in. With fish three years old, it is usually not advisable to have more than 200 trout to the acre to get good growth. The size of trout depends entirely upon the supply of food available from the third to the sixth year and not on the age of the fish. The reason the trout are not larger in many streams is that there is insufficient food for them. Multiplying the number by stocking with small fish will not increase the size.

In the Norwegian lakes it was found that these lakes grow only from 1.78 to 2.67 pounds of trout to the acre per year. This growth is probably typical of our cold, deep mountain lakes. The author states that the average run of streams probably grow from 5-8 pounds of trout per acre per year. He recommends that since streams cannot yield the amount of trout now demanded of them, the day's catch should be reduced to a reasonable number of fish.

The author reports that more trout are killed by their enemies than by disease, freshets, or drought. He includes as enemies the dragon fly, which kills small fish. Crawfish eat trout eggs. Bull frogs eat small fry in considerable quantities. Eels are destructive to eggs and fry, as well as larger trout. In reference to suckers, he reports that he has never observed suckers eating trout eggs, but, on the other hand, reports that suckers are one of the most valuable foods for trout. Kingfishers eat trout 4-5 inches long, and it is estimated that each eats at least ten trout each day. Fish hawks, or ospreys, take only large trout. All the heron family feed greedily on trout. The author reports attempting to see how many minnows a heron would eat, and fed this bird 160 without stopping, when he became tired of attempting to satisfy the bird. The worst of bird enemies is the blue Crane. An examination of one showed 140 trout in the crop, from $2\frac{1}{2}$ to 3 inches long. Owls also take large numbers of trout. Otters and mink are also destructive. Muskrats are found to be destructive to trout in ponds and kill a large number of large trout. The Brown Norway rat will also catch trout, and racoons and house cats are also reported as enemies. Larger fish, unable to get an adequate supply of food from insects, will capture and eat any trout they can get. Water snakes and snapping turtles also do a large amount of damage. The author is certain that vermin kill far more trout than are caught.

The author has also worked out a scheme for determining the age of trout by the reading of rings on the scales. This, of course, requires the use of a microscope. The trout grows more in length than in circumference, and for that reason the rings must be counted on a line at right angles to the base of the scale. He found that the number of rings per year was from 15 to 16.

The condition of a trout can be ascertained by the application of the following formulae: Condition factor equals weight times 100,000, divided by length raised to the third power. The condition factor of a trout in normal condition should be 42. Numbers below this mean a variation of $2\frac{1}{2}$ per cent from the normal.

The conclusions of the author are as follows: If streams are to be fished to an unlimited extent, there is no real solution to the problem. Streams cannot provide good fishing for any length of time during the season if they cannot grow the amount of fish required of them, and only by putting in good sized fish, raised and fed away from the stream, can any semblance of good fishing be maintained. For those waters where the amount of fishing and the fish taken out can be limited to the number produced early, there is no reason why the best of fishing cannot be had.

The various steps to be considered, according to the author, in improving a stream should be as follows:

1. Increase area of water to the greatest extent possible, making sure that area is maintained in low water periods, done by the use of suitable dams, ponds, or controlled streams.
2. Provide good hiding places and protection for trout of all ages for all stages of water at all seasons.
3. See that there is a suitable depth and area of water for small fish at all times of the year, and provide natural spawning grounds.
4. Keep down vermin and trout enemies as far as possible.
5. Wherever possible, raise trout in ponds on natural food, without over-crowding and let them out early in the streams when they are not less than 5 or 6 inches long. Do not over-stock streams with small hatchery trout. Try to make the stream do its own stocking. Don't over-fish a stream.

I have recently noticed that Colorado is planning an intensive development of rearing ponds in which trout are to be raised to a good size under forced feeding, and then liberated in the streams. Wyoming is also planning to do this. Hewett claims that this is not satisfactory and gives proof by means of liberations he has made. He reports that trout fed in this way will not rustle feed in the streams, and even in the summer will lose flesh, while nearly all die during the winter season. At Towner Lake, on the Medicine Bow Forest, the State officials have not fed fry but depend on the natural food supply. An effort is being made to increase the food available by introduction of insects (shrimp) and native vegetation.

ARE LABELS ANY GOOD?

By Fred Cleator, R. 6.

My experience with the human race has been that people like things with a label - something which they can talk about understandingly with other people.

It is my impression that some of my fellow officers are unduly increasing their blood pressure over the Primitive Area question.

If you happen to be a parent you have perhaps paused at the command of a youngster to observe the wonders of a pile of sand and sticks and rocks which he calls a city, or a garage with trucks, or perhaps a park.

Did you say to that child, "Here kid! Be material. Use Common Sense! Forget this sentimental stuff! All you have there is a mess of sand and sticks and rocks. Get out of the way."?

Or did you say? "Yes, lad, that's a dandy town, a swell garage, a peach of a park. You could fix it even a little better by doing this or that or the other."

Now here we are, the Forest Service, all loyal good fellows, administering many millions of acres of mountains, trees, waters, rocks, pasture lands, glaciers, and what not, for the good of the general public and for the good of such flora and fauna as do not get too much in the public's way. No one needs to tell any of us that great quantities of our wilder and less accessible lands are going to remain much that way whatever happens in the next many years. In Region 6, anyway, there is little that man can thwart, or that the Lord would want to interfere with, in keeping a few million acres in a primitive condition, whether we call them Primitive Areas or not. Presto - why not fearlessly label a generous supply of Primitive Areas at low cost for those of the public who believe such things necessary. These people are children at our game. Let us humor them and give them the labeled package even though the prize be a rather ephemeral imaginary spiritual thing which means little or nothing to the very businesslike forester.

I personally might go still a little further and figure up a few advanced schemes of primitive area management that would add even more to the illusion, if it is such, granting that it did not interfere with my work or that of others.

Because Congress has made it understood that we be honest and sensible and constructive in our forest management, I do not believe it is intended that we should be grim and dour and go to great effort to destroy the imaginings, the dreams, the ideals of those increasing groups of the general public who are bound to think of the National Forest as a playground, or a scenic gallery, as well as an industrial plant.

If we occupy the position of the besieged, giving way only where forced, I think we will gradually lose much public confidence that we might just as well keep; and still lose absolutely none of our other effectiveness.

If we can upon request from John Doe, open a book and say, yes, here is just what you are asking about, "Primitive Areas," plenty of them, we have gained a friend and lost nothing. I realize that there can be a conceivable menace here and there in primitive area classifications, but we must not fear too much for the future.

The definition of a primitive area is different in different localities. It means a hundred different things to a hundred different people. To a child, the shrubbery in the corner of the back yard may mean a vast primitive area. From this on up, the ideal may vary in size and style in accordance with individual taste. The more people who become interested in them, the easier will it be to satisfy the average at low cost.

Primitive areas, like other things in a changing world, will be subject to readjustment from decade to decade, or if you prefer, from century to century. Are we not just a little too much inclined to believe that we are making absolutely permanent settlements of the many problems that we contest so briskly, tho friendlily, among ourselves? Let us not make our lives or our business any more serious than they have to be. The National Forests and the forester and the general public of 2500 A.D. will still be somewhat imperfect and probably not in exact tune with each other.

A POWER SKIDDER IN SOUTH JERSEY

By O. M. Wood, Allegheny For. Exp. Sta.

Anyone familiar with the maximum dimensions reached by the timber of southern New Jersey might justifiably smile at the above title. While it is true that most logs could be removed from the south Jersey woods by "two men and a boy," our attention was recently called to an operation where this was not possible.

The timber from several acres of very swampy land had been cut during the winter. The edge of the swamp rose abruptly to higher ground but the muck in the swamp was so deep that no animal (other than man) could be persuaded to go beyond this edge.

The logger (wood cutter in this region) solved his problem by mounting a small gas engine and a hoisting drum in the open body of a motor truck. The truck was backed to the edge of the swamp and near to a large standing tree to which a block was fastened about twenty feet above the ground. A one-inch manila rope was passed through this block, one end going down to the drum on the truck and the other end out into the swamp. With the gas engine running and belted to the drum, the "snaking system" was ready for operation.

Two men dragged the rope out into the swamp and with a short log chain attached the rope to the log. The operator on the truck then threw the drum into gear, thus bringing the log to the truck. The two men in the swamp followed each log with a cant hook rolling the log when it became mired. Since all these logs had been cut with an axe (the crosscut saw is unknown in south Jersey) they had pointed ends. These caused the logs to become buried easily, which in turn stalled the engine. To prevent this, the operator slipped half of an old kitchen range boiler over the end of the log after first attaching the chain. The chain was then run out through a hole in the top of the boiler and attached to the rope. The logs thus fitted with a rounded iron "nose" were easily snaked through the muck. When the logs were landed the "nose" was removed and carried back to the next log by one of the men.

Several hundred logs were removed from the woods with this "skidder." The operator had no previous knowledge of power skidders nor had he ever seen anyone move logs with such a machine.

JACK PINE - PULPWOOD OR SAWLOGS?

It has been generally assumed that jack pine reaches its best development at about 50 or 60 years, at which time the trees should be cut. At such an age, jack pine on an average reaches a diameter of 7 or 8 inches and a height of about 55 feet. If this is the limit of growth for jack pine, then it should be grown chiefly for pulpwood and not for sawlogs, and clear cutting would seem to be the most practical method of utilization.

If, on the other hand, jack pine is capable of increasing its growth after 50 or 60 years, when the stand is opened up, it should be possible to grow jack pine to sawlog size in about 80 or 90 years and instead of clear cutting, the stand should be cut selectively or partially.

To test the ability of jack pine to respond to thinnings at the age of 50-60 years, the Station established 8 permanent sample plots -- 4 in a 60-year old overstocked stand on the Superior National Forest, and 4 in a 55-year old understocked stand on the Chippewa National Forest. These plots were cut over in various ways in 1926 and remeasured in 1931. In each set one plot was left uncut for comparison.

Practically all trees released by cutting in the 60-year old over-stocked stand, except the very small suppressed ones, accelerated their diameter growth. This growth was from 30 to 90 per cent greater than on similar trees on the untreated plot, the increase depending largely upon the degree to which the stand was opened. If this rate continues for 25 years, the average trees will then be about 10 inches in diameter with many trees much larger in size.

The understocked 55-year old stand behaved somewhat differently in that the large trees, which already had ample growing space, were but little affected by the thinning. However, medium sized trees, when released by cutting, accelerated their diameter growth fully as much as those in the dense overstocked stand.

Although time alone can tell how long the increased rate of growth will continue, the early acceleration in diameter growth brought out by these experiments emphasizes the possibility of some kind of a partial-cutting method in 55-60 year old jack pine. - Lake States For. Exp. Sta. Technical Note

YE EDITOR DISCOVERS

All indications are that the compulsory one month's furlough will finally be enacted as a substitute for a percentage pay cut. There are so many uncertainties in the way that it will be applied and how it will actually be handled in practice that anything said about it would be largely futile speculation.

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Several times the Editor has been confronted, in searching for news, with items about mycorrhiza. In an endeavor to discover just what these might be, it was learned that they are a group of fungi which attack the growing roots of forest trees. It was explained that mycorrhizae are sometimes found in nurseries as a dense whitish, cobwebby-like net about the roots of the trees, and that practically every species is affected by these strange fungi. It appears that in seedlings, for example, where these fungi are not present healthy growth is lacking and it is improbable that such seedlings will survive. Some believe that these fungi are able to assist the plant in obtaining from the soil certain nutrients. Some recent investigations show, however, that these fungi may grow through the entire plant and appear in parts far removed from the source of infection. Thus in the cranberry the strands of these fungi have been found in the seeds, having gone through the entire plant. To what extent a similar action takes place in trees has not yet been determined. It is quite probable, however, that these fungi have a very important place in the whole physiology of growth and development of trees and perhaps of other forms of vegetation.

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Uncle Sam's Forest Rangers radio program continues to bring in fan letters by the bushel. The following are two of the most interesting recently received:

"Ranger Jim Robbins:

"Enjoyed your program in regard to the new observation station on Bald Peak. I am located in an observation tower in Orange County, New York. I have a one tube radio set in my tower and I listen in when the time permits. While listening in today, I heard you explain to Jerry his duties and at the same time a fire broke out 19 miles from me that I had to report, so I did not hear the rest of the program.

"Keep up the good work. Your program does more for the suppression of forest fires than anything I know of. Good luck."

"Uncle Sam's Forest Rangers:

"I listen to your program every time you broadcast, and enjoy it very much. Last year I gathered a number of seeds from trees around my home and planted them. This year I have some nice seedlings which I transplanted, and they are doing fine. I like trees and think every farmer should have a wood lot and plant some trees every year."

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Prizes for the best photographic studies of trees growing in California are being offered by the Save-the-Redwoods League, under the auspices of the California Conservation Committee of the Garden Club of America. The first prize will be \$100; second, \$75; third, \$50; and fourth, \$25.

The contest is open to any person, amateur or professional. Photographs should be of trees growing in California - details of trees, individual specimens, or forest views. Any size and finish of print will be acceptable, but it must be mounted on a mat 14 inches wide by 19 inches high. Full name and address should be given on back of the mounted picture. Contest will end September 7, 1932. Photographs should be sent to the M. H. de Young Memorial Museum, Golden Gate Park, San Francisco, addressed to "California Trees Photographic Competition." If further information is desired, write to the Save-the-Redwoods League, 114 Sansome Street, San Francisco.

DOCTORS ORDERS

"You've won the great world's envied prize,
And grand you look in people's eyes,
With Ph.D. and M.Sc.
In big brave letters, fair to see.
Your fist, old fellows! You're our men!
Hurrah for Bill, Bob, Charles, and Ken!"

(With apologies to the "Autocrat of the Breakfast Table," in "Bill and Joe")

Word is received that, on June 14, 1932, the University of Chicago conferred doctorates of philosophy on Messrs. Robert S. Campbell and Charles J. Whitfield of the Southwestern Forest and Range Experiment Station, as well as on Professor William G. McGinnies of the Arizona College of Agriculture and Experiment Station, a distinguished Forest Service alumnus. At the same time and place Mr. Kenneth Pearse of the Intermountain Forest and Range Experiment Station received a magistracy of science. Their numerous friends sincerely delight to felicitate these four men on their distinguished and well merited academic honors; they have "done us proud." Boys ditch the apples and, in the classic phrase of Tex. Guinan, give these new doctors (as well as Bro. Pearse) a big hand; they won't go anywhere without their degrees and those degrees will go anywhere! Or (for the benefit of the Service highbrow element--the Brahmins, literati, savants, and pundits who never heard of "Tex.") "Quid es suavius quam bene rem gerere?" -- as Plautus hath it. - Daytonius

PLOW DEMONSTRATION AT A FIRE MEETING ON THE PAYETTE

In demonstrating the use of the plow, the edge of a 1931 fire in the ponderosa pine type was followed so that its use was exactly comparable to what might have been expected on the fire line. There was not a great deal of down timber but there were slopes varying from level to 40 per cent, huckleberry and other small brush with plenty of roots, and some rock. In a test of 80 minutes, 52 chains of line were actually constructed, while there was some time taken for discussion, and some line which offered no problems was passed over without construction. In going uphill, 15 chains of line were constructed in 20 minutes, while in going downhill, 23 chains of line were built in 29 minutes. The fast construction was as might be expected on a downhill grade, twelve chains of line being made in 10 minutes. The usual rate was about a chain a minute of actual work time. A total line of 52 chains was built in 49 minutes of actual construction time, the remainder being spent in resting the horse. Two horses were available for the work, but it was quickly demonstrated that the

horse is an extremely important part of the plow crew. One horse declined to perform, so the entire job of construction was done by the other horse.

The demonstration of building fire line at night, either with plow or with hand tools, was entirely successful and indicated that it is practical to build fire line at night with lights no better than the Coleman lanterns which we have at present. - R. 4 Bulletin

Editors Note: The Branch of Operation is rather crestfallen over this demonstration. This one chain a minute stuff makes the demonstrations and objectives of the Branch look rather out of date.

THOUGHTLESSNESS - AND BLISTER RUST

The Forest officer who started to plant currant bushes around his station, in five-needled pine territory, undoubtedly knew of the white pine blister rust, but did not think of it in connection with his visions of home-made currant jelly. A man outside the Service, who knew of the incident, suggested an order by the Forester to guard against recurrence, but that seems unnecessary. However, some may not know that the Department of Agriculture stands against the planting of the European black currant (Ribes nigrum) anywhere in the country, whether in "white pine" territory or not, and that the same is true for those native species which are almost as bad disseminators of the rust, Ribes petiolare and R. bracteosum. Few will ever want to plant these or other currants, but those who have such a desire can not be thoughtless without endangering the reputation of the Service as well as their own standing. - E. E. Carter

WHITE LIGHTNING VERSUS RED AS A FIRE HAZARD

Mr. Seley W. Moore' of Darby, Mont., says, in a letter dated October 14, 1931, that he spent the summers of both 1930 and 1931 on a lookout, that is, a place commanding a wide view from which watch is kept for forest fires, and that it was his observation that red lightning, though often tearing trees to pieces, seldom starts a fire. Now, it is well known that many forest fires are started by lightning, especially by that of "dry" thunderstorms--the thunderstorms whose rain, being all evaporated in mid-air, does not reach the earth. We therefore infer that if it be generally true that red lightning seldom starts a fire then the lightning of a dry thunderstorm must not be red. Indeed since in this case those portions of the electric discharges which are clearly seen occur out in the open and rainless air their light must be owing almost entirely to the two gases oxygen and nitrogen, and therefore contain too little red for that color to become conspicuous even when the lightning is a long ways off. Essentially it is white lightning or even bluish white. On the other hand, a lightning discharge through heavy rain may well dissociate some of the water, or water vapor, along its path, and thereby produce also the hydrogen spectrum, which is brilliantly red, in addition to those of the chief gases of the atmosphere, oxygen and nitrogen. In this way the lightning would, and doubtless does, become distinctly red. Apparently, then, lightning through rain is, or may be, red while that through the air where there is no rain is not red, but commonly white. Hence red lightning, being through rain, strikes only wet objects and therefore seldom starts a fire, while white lightning may, and often does, strike dry fuel which is far more easily fired than is the same sort of duff or other material when wet. In short it is not the difference between white lightning and red lightning that makes the one a greater fire hazard than the other, but the condition, wet or dry, of the combustible when struck. - W. J. Humphreys, in Monthly Weather Review, December, 1931



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Theodore Roosevelt

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SOLVING THE FOREST AND WATER RIDDLE

By E. I. Kotok, California For. Exp. Sta.

(Extracts from address before the annual meeting of the
American Forestry Association at Baltimore, Md., May 26-27, 1932)

A recent survey of the drainage of the Rio Grande River in New Mexico that feeds the Elephant Butte reservoir, disclosed that thirty-five per cent of the area is eroding rapidly, forty per cent moderately and only twenty-five per cent slightly. This accelerated erosion is directly traceable to overgrazing, and its denudation of the vegetative cover following unregulated grazing in the past twenty-five years. In a seventeen year period only, thirteen per cent of the storage capacity of Elephant Butte reservoir has been filled with the silt from this accelerated erosion. On the maintenance of this reservoir depends an agricultural investment of about \$90,000,000, yet, at the present rate of depletion, the communities wholly dependent upon this great reservoir will be minus their water supply in two more generations or less.

A similar survey of the Colorado River watershed which will feed the Hoover reservoir at Boulder Dam shows fifty per cent of the area severely eroding. Here again the capital investment in the largest dam in history is jeopardized by an extreme erosive process attributed to denudation by overgrazing of the vegetative cover over the entire watershed. It is well to note in both of these cases that erosion was not at all serious previous to man's occupation, but that this period of increasing erosional activity coincides with white man's settlement and the increasing intensity of grazing use by his livestock.

The Gibraltar reservoir, supplying domestic water to the city of Santa Barbara in California, depends on a watershed area of 133,000 acres. Fifteen per cent of this watershed was burned over in 1923. A survey in 1927 shows that 5.7 per cent of the storage capacity of the reservoir was taken by the eroded material from this burned area. Thus in a territory where water is costly and scarce, one fire reduced the capital investment of this important watershed almost six per cent in five years.

A detailed survey of 128,000 acres of the Boise River watershed in Idaho showed that twenty-seven per cent of the non-eroding area was protected by dense brush and was not used by grazing stock. On the other hand, fifty-six per cent of the area where grazing was intense had been subjected to widespread sheet erosion, seventeen per cent badly gullied, and a large part of the upper soil layer had already been lost. The capacity of the Arrow Rock

Reservoir fed by this watershed has been reduced six per cent, the dependent power plant losing twenty-five per cent of its productive efficiency.

These examples of silting of reservoirs are largely chargeable to the denudation of the herbaceous and brush cover as a result of overgrazing by livestock. They emphasize the unwisdom of investing millions in water storage works on the basis of past normal erosion, when man's destructive activities are now increasing this erosion at accelerated rates. Similar results could be pointed out from other of these recent surveys showing beyond peradventure that erosion on a grand scale, alarming in its potential destructiveness, is to be found from coast to coast, and from Canada to the Gulf of Mexico. In the West it coincides with the white man's settlement and is not chargeable, as is claimed, to normal and inevitable geologic processes. We are moving our soil and changing the land-surfaces at a pace measurable not by geologic time periods but by the span of a brief human generation.

A group of experiments in California illustrate the effect of the removal of forest and brush cover on run-off and erosion processes. Comparable areas of one twentieth of an acre in size, located side by side, have been studied. One area was denuded of its forest and brush cover by fire, the adjacent area left intact with its natural vegetation. Instruments were developed which measured the immediate surface run-off and eroded material from each plot together with simultaneous measurements of rainfall. These experiments were repeated in a number of places, and all show conclusively these striking results:

1. The removal of cover by fire invariably increases the surface run-off fifteen to twenty times more than from the undisturbed area.

2. The undisturbed area shows barest traces of eroded material, whereas four cubic yards per acre of top soil is lost from the burned plots during one rainy season.

3. Light rains may not start erosion, but rains reaching intensities of one inch per hour, even if only of a few minutes duration, develop immediate excessive run-off and erosion.

These experiments prove that for California, fire is the chief contributing factor to floods in its main river drainages and to the silting of its navigable streams and harbors. This eroded material which has annually been filling channels in progressively higher quantities because of the removal of the vegetative cover by fire has compelled an expenditure of millions of dollars by the Federal and State governments for maintaining the navigability of the Sacramento and San Joaquin rivers.

Another correlated experiment is of utmost significance in showing the true value of the forest litter and the function it performs under forest conditions. In this study similar forest soils with their varied litter and mulch covers were compared when the litter was burned and unburned. When subjected to natural and artificial rains the areas with the litter cover burned off showed sixteen times the surface run-off that was found from the plots with their litter cover undisturbed; and the eroded material was 2300 times as great from the burned plots as compared with the unburned. These extreme variations were found to exist even when torrential rains were applied to the areas. Litter covered soils continue to exert to a remarkable degree a capacity to resist erosion even under the most torrential rainfalls and to absorb maximum quantities of the water falling on them. ***

Studies show that a litter cover on the forest soil acts as a filter, removing earth and soil particles from water and permitting only clear water to percolate into the soil. So long as the water remains clear, the forest soil apparently can absorb unlimited quantities. On the other hand, when the litter is burned, rain impinging on the bare soil surface develops a murky solution heavily charged with tiny soil particles which seal all the small pores and openings in the surface soil and so prevent any deeper percolation. As the water thus is not absorbed, a heavy surface run-off results, which in turn causes the severe erosion.

It was found that the litter layer on the forest floor is not merely a sponge, which when once saturated ceases to be further effective in checking run-off, but that it continues

to function, regardless of the amount and intensity of precipitation, by maintaining the percolation capacity of the soil. It follows naturally, that for the percolation of water in greatest amounts, for the reduction of surface run-off and floods, and for the checking of erosion, a cover of vegetation that will insure and maintain an effective layer of litter and duff is highly essential.

More abundantly than any other vegetation, forests develop the valuable litter and duff that influences so radically the percolation of water. Through their very growth forests likewise give the soil further capacity to absorb water. An experiment in Ohio in confirmation of this theory shows that in second growth forests where grazing has been excluded the first inch of soil in the forest floor absorbs forty-five times more water than the same soil in an adjacent field, fourteen times more at three inch depth, and two and a half times more at eight inch depth. This, briefly, means that soils in the woods are really able to hold more water than soils with other covers.

Another California experiment shows that a four inch layer of soil topped with a four inch layer of litter will permit from seventy to eighty-five per cent of the rain falling to percolate through it, whereas an eight inch bare soil only permits twelve to thirty per cent of the rainfall to percolate. This means that even under the most favorable condition for percolation, namely, a level surface, litter increases percolation two and a half to five times, and this is important because the balance of the rainfall which does not percolate is lost through evaporation.

These experiments all confirm one of the important premises on which conservationists based the need for a national program of forestry, namely, that the removal or destruction of the vegetation mantle exposes the land surfaces to the full forces of erosion by reducing the absorptive capacity of the soil and by increasing surface run-off, thus accelerating the process of erosion and intensifying floods. ***

Three forces are to be reckoned with which profoundly modify and disturb the natural cover of wild lands; fire, grazing, and lumbering. At the present time, fire, perhaps, is the outstanding destructive force on forest lands, particularly if it follows clear-cutting of the forest. Repeated fires on an area not only stop nature's attempt to heal and cure but accentuate the erosion processes enormously. ***

Unregulated grazing of livestock, slowly but progressively reducing the herbaceous vegetation on range and forest lands, is another destructive force which contributes to the acceleration of erosive processes, increasing of run-off and the peaking of floods. Agricultural development on marginal lands, as well as unwise methods of culture on our most productive farm lands, further contributes to this serious problem of erosion and run-off.

Conservationists must recognize that after a quarter century of effort they have a long way to go in keeping our forest values intact. Forest conservation for timber supply should not be considered as the major end of forestry, but, instead, the maintenance of forest cover. Regardless of timber values the cover itself is the keystone of conservation. The cover must be maintained on our forest lands and on our grazing lands if we are to maintain the navigability of our rivers and the integrity of our harbors, and if we are to protect our water resources for the home, the farm, and the factory. This country must be ready to accept and impose a coordinated land policy regardless of the ownership of lands involved, regardless of the sanctity of personal property rights in lands, regardless of the rivalry between State and Federal jurisdictions in lands, if the knowledge already at hand on land abuses is to bring about effective conservation of all our land values.

WEALTH FROM WOOD WASTE

At Iron Mountain in northern Michigan are located the sawmill and wood utilization plant of one of the largest automobile manufacturers in America. This company has its own forest nearby and has put the entire area under the supervision of trained foresters. It is interesting to note how completely waste has been eliminated or converted into useful by-products, when the trees are cut and worked up to supply the needs of the great auto factory at Detroit.

The wood offal from the saws, planers, edgers, trimmers, jointers, and lathes total about 450 tons daily. About half is from the sawmill and has a water content of 36 per cent; that from the wood working units has been dried and contains only 10 per cent moisture. Maple wood constitutes 70 per cent, birch 25 per cent, ash, elm, and oak 5 per cent of the waste.

An endless belt carries the miscellaneous debris to a chipper, or "hog," which reduces the larger material to pieces about 8x2x1 inches, which are separated from the sawdust and shavings and stored in separate bins to yield nearly the same products after somewhat different distillation treatment.

The wood is first dried in huge rotating drums or cylinders with a capacity of 6,000 pounds of chips to a charge. After three hours the wood comes out with its moisture content reduced to one-half per cent (1 part water in 200). It is next conveyed to the distillation retorts. These are so organized as to be used continuously, thus permitting a maximum economy of heat. However, about every two weeks each retort must be cleaned of the tarry residues which accumulate and which must be removed by burning with a blow torch contrivance.

The primary products from the retorts are charcoal, crude wood acids, and non-condensable gases. The gases are purified and used in the furnaces for fuel for the most part, but also serve for the preliminary heating of the retorts. The charcoal, after some preliminary cooling, is passed over a magnetic separator to remove iron fragments and then conveyed to large revolving metal drums, like those used in drying the wood, where it is permitted to absorb oxygen from the air. By this treatment charcoal is made safe for shipment or storage in about five hours, as compared with the usual methods which require 48 hours. The charcoal is screened into three grades. The coarsest and best is suitable for use in metal refining; it is disposed of without further treatment. The second grade is ground and pressed into briquettes which are sold for fuel. The remainder is pulverized and burned under the boilers.

From the raw wood acid condensed from the retorts the chemists derive wood vinegar, methanol (wood alcohol), volatile hydrocarbons, acetone, wood acetate, a variety of oils, tarry residues and water. A ton of wood waste yields about 96 gallons of crude wood acid which contains $4\frac{1}{2}$ per cent wood alcohol and $12\frac{1}{2}$ per cent of wood vinegar.

The yield from a ton of wood by the method described is at present 600 pounds of charcoal, 4450 cubic feet of non-condensable gases, $2\frac{1}{2}$ gallons of wood alcohol, 2.3 quarts of wood acetone, .17 quarts of volatile oils, .79 quarts of ketones, 3 quarts of wood acetate, 19.3 gallons light tar, 66 pounds resins and pitch, 2.7 gallons of creosote oil, 14 gallons of ethyl acetate and 4.5 quarts of formic acid. All these products are of excellent quality and are sold in the open market, except the ethyl acetate which is used in the manufacture of paints and varnish and as a component of artificial leather.

The founders of our meat packing industry were wont to boast that when a hog went through their mill "nothing was lost except the squeal." The foregoing description of wood chemistry in actual practice shows that when modern intensive methods have finished with a tree, even its bark must yield up its secret wealth. - Clipped from Pa. Dept. of Forests and Waters Service Letter

BALKAN PINE

By W. A. Dayton, Washington

The "Supplement to the Blister Rust News" for March, 1932 (vol. 16, no. 3, pp. 62-69) has an interesting article by Dr. Karl M. Muller of Munich, Germany, entitled "Pinus peuce, the Macedonian white pine, as a substitute for Pinus strobus."

I am informed by Mr. L. S. Gross that Pinus peuce is being experimented with in plantations in Region 7. If this 5-needled Balkan pine proves, as reported, immune, or at least highly resistant to the white pine blister rust it seems reasonable to suppose that it may assume, despite its alleged slow growth, and apparently only moderate size, increasing importance in American forestry and horticulture. It seems worth while, therefore, to pay a little attention to its English nomenclature. In Standardized Plant Names the species is called Macedonian pine and the Blister Rust people are apparently calling it Macedonian white pine. The writer advocates the name Balkan pine for the species and has gotten Dr. Frederick V. Coville to favor the name; Dr. Coville writes me that he is recommending to Mr. Kelsey the use of Balkan pine for Pinus peuce in the next edition of Standardized Plant Names.

The chief objections to Macedonian pine are: (1) Macedonian is a pentasyllabic word; (2) the exact connotation of Macedonia is obscured by the more or less kaleidoscopic changes in the boundaries of that region which have occurred from Philip and Alexander's day to our own, and (3) as a name applied to Pinus peuce, which is essentially a species of the Balkan Mountains and Balkan Peninsula, Macedonian pine is obviously not as appropriate as Balkan pine.

There are, it is true, perhaps as many as nine different pines occurring naturally in the Balkan Peninsula besides Pinus peuce, viz., Aleppo pine (Pinus halepensis Mill.), P. heldreichii Christ (perhaps only a synonym of P. leucodermis), graybark pine (P. leucodermis Ant.), mugho pine (P. mugo mughus (Willd.) Zen., syn. P. montana mughus Willd.), shrubby Swiss pine (P. mugo pumilio (Willk.) Zen., syn. P. montana pumilio Willk.), Austrian pine (P. nigra austriaca Aschers. & Graebn.), cluster pine (P. pinaster Ait., syn. P. maritima Poir.), Italian stone pine (P. pinea L.), and Scotch pine (P. sylvestris L.). It should be noted, however, that three of these (P. halepensis, P. pinaster, and P. pinea) are essentially Mediterranean and coastal species, P. heldreichii is (so far as known) confined to Albania and Mount Olympus, the occurrence of the northern P. sylvestris in the Balkans is still uncertain, P. nigra austriaca reaches the Balkan Peninsula only on its extreme northwestern fringe and is not truly a Balkan species. While the two varieties mentioned of P. mugo occur in the Balkan region they are, as is the species, admittedly more typical of the Swiss Alps and of central rather than southeastern Europe. In other words, Pinus peuce is the one outstanding indigenous pine of the Balkan Mountains and the Balkan Peninsula, and, so far as known, is found naturally nowhere else. The term "Balkan" has the further advantage over "Macedonian" in being fixed topographically and more permanent geographically, and is three syllables shorter. Hence Balkan pine seems preferable to Macedonian pine for Pinus peuce.

CUTTING THE FARM WOODS

The late William Willard Ashe was a pioneer in forestry in the South and left a rich legacy of precepts and principles.

Two of his contributions to forestry are of outstanding importance. One resulted from his accurate study of the value of trees of different sizes (see Dept. of Agr. Leaflet 55). The other was the emphasis he brought to bear upon the importance of maintaining a good

forest capital or growing stock. The following by Mr. Ashe, published in a leading southern farm journal, is bed-rock doctrine in farm forestry:

"The way in which timber is cut and the amount of growing wood continuously left upon the land in large measure determine the profit which comes from timberland. Not all of a stand of second-growth pine, even though most of the trees therein may be 12 inches and even more in diameter, should be regarded as the crop. Only a portion of the trees represents the crop, while the remainder represents a portion of the capital or growing stock and must be held and kept growing in order to secure this maximum yield which the soil is capable of producing.

"Bear this in mind and never lose sight of it — it is the basis of all methods of making timberland profitable: No matter how urgent the need, no matter how insistent the buyer, hold upon the land a large part -- at least half -- of all the timber which in your mind the soil is capable of sustaining. It would be far better could you hold two-thirds, but it is not always possible to hold this much in making a sale to a sawmill."

YE EDITOR DISCOVERS

The Omnibus savings bill, which includes the compulsory one-month furlough for all Federal employees receiving more than \$1,000, was signed by the President on June 30. It is understood that a statement of policy or instructions has already been prepared by the Bureau of the Budget on the application of the compulsory furlough and that this statement is to be released within the next few days. The Department is also understood to have a set of questions ready for submission to the Comptroller General. These questions are being held until the nature of the material from the Budget Bureau is known. In view of the apparent promptness with which the Bureau of the Budget, the Department, and the Comptroller General will act, the obvious course of the Forest Service is to wait until the various questions can be worked out in an orderly way. Many confusing questions have arisen, but it is believed that there will be a disposition on the part of all Federal authorities to interpret and apply the law in a way which will minimize the confusion as far as possible.

It is expected that the compulsory one-month furlough will be handled by a deduction of 2½ days' pay for each month for yearlong employees. The one month's leave of absence could then be drawn according to the convenience of employees and the requirements of the work involved, in much the same way as annual leave is now handled. There would necessarily have to be exceptions to this, and it will not be known whether this system can be applied until the Comptroller General expresses his opinion. It is fairly clear, however, that all amounts accruing because of reductions in pay resulting from this bill must be impounded and returned to the Treasury.

One of the items of confusion arising from this bill involves wage reduction to guards and other short term employees receiving pay exclusive of subsistence at rates in excess of \$1,000 per year. Some authorities hold that the compulsory furlough or alternative 8-1/3 per cent pay reduction provisions will not be held to apply to short term employees. The technical legal basis for this opinion is not very convincing, but the Comptroller General's decision may be that way. An effort was made to get the Bureau of the Budget to request the conferees to make a specific exemption of short term workers on the National Forests, but this came to nothing. If the law is held to apply to such workers and if the most adverse application of the law should be enforced, a guard going on fire duty on June 1 at a rate 10 per cent less than that paid in 1930 might suffer an additional 8-1/3 per cent reduction on July 1, while a guard going on fire duty on July 5 might only be required to take a total reduction of 8-1/3 per cent below his last year's rate of pay. The law does not apply in any case where the rate of pay is less than \$1000 per annum.

A movement is under way in Congress to repeal some items in the bill, such as the one calling for furlough of husband or wife where both are in Government employment, in the event that additional furloughs are necessary.

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The Agricultural Appropriation Bill has not yet (July 1) been passed, but its passage is expected momentarily. The latest report is that the Senate has accepted the view that it is now too late to do anything effective in combating the grasshopper plague and is prepared to withdraw from the position it took on this item. It is reported that this would dissolve all differences between the Senate and the House and that it would only require a minute or two for formal final action of each house in approval of the conference report.

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Several Departments who suffered the Senate 10 per cent cut in appropriations in addition to previous cuts undoubtedly will have to furlough all employees perhaps a month or more in addition to the one-month compulsory furlough.

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This spring Region 5 undertook an insect control job near the line between the Shasta and Modoc Forests, in cooperation with a lumber company which has large intermingled holdings. The cost of the work was shared on the basis of the volume of the trees treated on the two ownerships. After the job was finished and the report submitted, the manager of the lumber company wrote the Forest Supervisor as follows:

"I not only want to compliment you on its being an excellent report, but I also want to advise you that our own men have been unlimited in their praise of the excellent and efficient way in which this work was done. It is not often that one puts his money in a project with someone else and is well satisfied with the way it is spent, but our men have assured me time and time again that they never saw a better job of bug control work done, and they do not feel that it has ever been done at a more reasonable cost.

"I want to congratulate you and sincerely hope that we shall have an opportunity to work in conjunction with you again on some other timber project. We, of course, feel very strongly that this is the proper way to take care of the beetles; and I am quite sure that your work will show that this money has been well spent and that both the Government and our company will reap great benefits from it."

LOOKOUT DISCOVERS AND REPORTS A FIRE BEFORE IT STARTS

Lopez, keen-eyed, nervously vigilant lookout on Oak Mountain's 60 foot pinnacle of steel on the Angeles Forest, reported to the Newhall Dispatcher at exactly 9:18 A.M. on July 21, 1929, a yellowish smokelike cloud rising in the foreground of bald, burnt off Whitaker Peak.

Said Lopez -- "It's a smoke all right, but it has disappeared now. Might have been a band of sheep and yet there are no sheep in that country, are there?"

The District Ranger, knowing that the country was almost bare of vegetation, was not particularly concerned with the report, but requested Lopez to keep a sharp watch for any recurrence of the smoke, attributing the dusty, colored puff to a road blast in the near vicinity.

At 10:05 A.M. Lopez noticed and reported a thin spiral of black smoke rising vertically in the calm morning air at identically the same point he had observed the dust colored one

previously. This was annoying to the District Ranger, black smoke from an area almost devoid of cover was intriguing. So he left for the fire.

Here is what he found: An earthquake--weakened 12" natural gas main, crossing the mountains from the oil fields had blown up under peak load pressure, causing the dust cloud of 9:18 A.M. Two Gas Company patrolmen, hunting for the leak in the main, had unwittingly driven their car directly into the escaping gas, which ignited with a terrific roar, consuming everything before it. The unfortunate patrolmen were cremated in their car, while the fire burned $\frac{1}{2}$ acre of sparse grass and weed cover and a wooden truss bridge. This threw up the thin spiral of black smoke of 10:05 A.M. Thus Lookout Lopez had actually discovered and reported the blaze 50 minutes before it had started. - R. 5 Bulletin

FIRE TOOL TEST

By C. N. Woods, R. 4

At the Salmon conference a comparison was made of the Pulaski tools versus the double bitted axe and grub hoe. Two fire lines, each 123 feet long, were constructed in lodgepole timber by a crew of ten men. One was built with Pulaski tools in 9 minutes, both clearing and trenching. The other line was built by the same ten men under as nearly similar conditions as could be found, in 8 minutes and 53 seconds, axes and grub hoes being used. Trees were cleared to a width of six feet and an 8" trench was built to mineral soil. The basal area of trees cut with the Pulaski is 1151 square inches; with axes 1210 square inches; 48.78 per cent was cut with the Pulaski and 51.22 per cent with axes. There were a few trees as big as 8 to 10 inches D.B.H. on each line.

Another test was made with Baby shovels versus the standard #1 shovel. two trenches each 105 feet long being built in very open ponderosa pine on a steep slope. In order to get the best comparison the same crew built both trenches. With the Baby shovel the time was 1 minute 49 seconds; with the standard shovel 1 minute 46 seconds.

These tests obviously are not conclusive, but they at least indicate strongly that the Baby shovel and the Pulaski tools are real tools and not toys. The Pulaski has a dual purpose, and has material advantages on this account over the axe and grub hoe. It is suggested that you give these new tools a thorough trial before condemning them. - R. 4 Bulletin

WE MOVE AT LAST

For two months the R. O. has hovered on the verge of moving to the new Federal Building. Today (June 24) the trucks are pouring desks, cases, and files into the new building. Dr. Long's office moves first and then will follow the R.O. and Drafting. The transfer company has six days in which to complete the job so by June 30 we will be snugly housed in our new quarters on the second and third floors of the Federal Building. When you field officers next visit the R.O. head for the post office, take the elevator, and stop at the office of your choice. - R. 3 Bulletin

R-6 ANNOUNCES NEW CAMPING REGULATION

A new regulation affecting campers in the National Forests of Oregon and Washington will be in force for the first time this year, from July 1 to September 30. This regulation provides that anyone going or being upon any National Forest land in Oregon or Washington (except the Siuslaw National Forest), with automobiles, other vehicles, or pack horses, with the intention of camping, must be equipped for each vehicle or pack train, with the following fire-fighting tools: (a) One axe, not less than 26 inches in length over all, with head weighing two pounds or over; (b) one shovel not less than 36 inches in length over all, with blade not less than 8 inches wide; (c) one water container, capacity one gallon or more. Persons camping at improved and posted forest camps are exempted from this requirement. - R-6 News Release



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Theodore Roosevelt

Vol. XVI No. 29

Washington, D. C.

July 18, 1932

REPRESENTATIVE SCOTT LEAVITT JOINS THE MONTANA VOLUNTEER FOREST FIRE WARDENS

A Commission as Volunteer Forest Fire Warden was presented to Representative Scott Leavitt by Secretary of Agriculture Hyde last week. The Secretary made the presentation on behalf of the State Forester of Montana. More than 3,000 representative citizens in Montana and northern Idaho, headed by the Governors of the two States, have now accepted appointment as Volunteer Forest Fire Wardens. The State Foresters of Idaho and Montana and the Forest Service in Region 1 are cooperating in the organization of this group, which has been likened to the old-time Vigilante committees.

The Washington office has had a sound movie made of the presentation and Representative Leavitt's talk. This will be ready for release within the next week or so and we hope to be able to purchase copies for use in the Regions. The photography consists of shots of the Secretary and Representative Leavitt during the presentation, followed by Leavitt's talk. Forest scenes illustrating the various points of Mr. Leavitt's talk also will be worked into the film. The Associated Press is carrying a feature story on the Volunteer Forest Fire Warden plan.

In making the presentation Secretary Hyde said: "Congressman Leavitt: I have here, for presentation to you, a Commission from the Montana Forest Service as a Volunteer Fire Warden.

"The history of this nation's use of its natural resources, and particularly, of its soil and its forests, is marred by unwise waste and an appalling carelessness toward the future.

"We now face the task of repairing past wastes, and of wisely using what is left. It is a tremendous task and one that needs competent leaders, many friends, and wide and sympathetic understanding of the difficulties, if success is to come. The nation's Forests are most intimately related to the social and economic aspects of our lives. They must be protected, and fire is their greatest single enemy. Your untiring work in the interest of Conservation is both locally and nationally known. It gives me pleasure to present to you this Commission as Volunteer Fire Warden."

Mr. Leavitt replied: "Mr. Secretary, I thank you. I consider it an honor to be admitted to membership among those splendid guardians and workers, the Volunteer Forest Fire Wardens, and when the occasion comes, I shall, I promise you, exercise the authority of this Commission."

Continuing, he said: "I am interested in Conservation, both state and national. Secretary Hyde has pointed out, at various times, the need for intelligent national use of our resources in land and forests.

"In my home State of Montana, 29 counties have an investment of 50 million dollars in ranches and stock. The safety of this investment depends on continued production of good feed on National Forest ranges, and a land policy guaranteeing stability of use by those most entitled to use these ranges.

"Water is vitally important to our health and wealth.

"Forty-eight per cent of the 771,000 horse power from 75 potential plants in Montana, is dependent on National Forest run off. Millions of dollars will some day be invested in plants to use this water. We must protect its source and guarantee its flow.

"Ninety-five per cent of the irrigated lands in Montana, valued at fifty to sixty million dollars, is in large part, dependent on National Forest watersheds. In other States the conservation problem is similar.

"Denuded hills pour their soil down into the valleys and fill costly reservoirs. Forest and grass clad hills keep soil in place and facilitate the underground storage of water in vast quantities.

"Our National forests provide homes and breeding places for 80 per cent of our big game animals and for uncounted small game. From these forests comes a natural distribution of game over the surrounding lands.

"Timber sales provide a revenue, more than a third of which returns to the State.

"We are coming to see that health can be, and must be, conserved as our most tremendous and valuable social resource.

"Recreation is a vital factor in its conservation.

"We are becoming out-door-minded. We long for the open roads and trails with their beauty of scenery, fishing, camping, hiking, hunting.

"The number of visitors on the National Forests, I am told, has in ten years increased from 3 million to almost 33 million.

"These visitors spread their money far and wide and add to the prosperity of regions.

"Secretary of Agriculture Hyde, has said that man's treatment of the soil reflects no credit on mankind; that man was placed in a garden and has transformed it into a desert. He has cut off the forest over large areas. He has burned the ground cover, exposing the soil to erosion. He has overgrazed, destroyed the vegetation and invited the running waters to carry away the soil. He has plowed slopes against, rather than with, natural contours, and all of this is preventable.

"We must give serious thought - and we must think nationally and not alone locally - to our use of land. To our soil and its cover of grasses and forests.

"Our existence as a nation whose roots are in its soil, and our future security, demand that we shall not permit these resources to be squandered under any system of haphazard care, but that we shall plan wisely and now, for their use, and so that their renewable riches shall be ever at our command.

"The conservation principle of the greatest good to the greatest number must be the promise that these huge investments, which I have mentioned, and which have brought profit and happiness to so many, and which are so largely dependent on our forests, shall have the protection and insurance they deserve.

"Forests and grasses will renew the soil, they will keep it in place, help prevent erosion, and store the rains that fall. Fire is the greatest single enemy of these renewable resources and that unfortunate time, the fire season, with its ruthless destruction, is a time when each of us should stop and think, resolve to be careful with fire, and to make prudent plans for the future use of our natural riches.

"My part shall be to work for these worthwhile ends to the utmost of my ability, both when I am in Congress, and as a volunteer fire warden, when I am at home."

NEW SOURCE OF INCOME FOR LANDOWNERS

"The part that wild life may play in making lands more productive, and its importance in affording means for their profitable utilization, have in the past had altogether too little attention,"

"The lands of the South will bring in millions of dollars, if stocked with game and if the honest hunter can hunt without feeling that he is trespassing;"

"Game might prove to be the major source of profit while other forest crops are reaching maturity, and may be made to cover carrying charges during the long period when forest trees are growing to marketable size;"

"The hunter could be made to pay the cost of reforestation - in fact he might be a more valuable crop than trees;"

"The annual quail crop, if judiciously handled, is worth millions of dollars to the farmers of this country;"

"When they start realizing an income from game, farmers will have an added incentive in assisting nature and providing artificial propagation;"

"The game birds of the future will come from the farmer who propagates them."

We hear such expressions from many sources, but how can it be done, what practical steps may be taken to promote our wild life possibilities and reap the benefits that can be made to accrue from the successful development of this great enterprise?***

The way to make game more abundant is to commercialize it, private enterprise must be depended upon to protect and propagate wild game. The State can't do it, nor can the individual landowner, but it can be done in the logical way, through cooperation by the landowner, sportsman, and the State. What incentive has the farmer or landowner to protect or propagate game on his holdings? Under present conditions he is not justified in going to any trouble or expense to increase wild life, no revenue can possibly accrue to him, so he is not interested. But just let him realize an income from game and see how quickly he will respond to a cooperative plan to increase wild game that his revenues may increase proportionately to his effort to destroy vermin, and provide food and protection on his own property. The hunter is eager for game and ready to pay for the privilege of hunting where it is available, so there surely is a way to compensate the farmer or landowner, for it is to him we are to look for more game. The game birds of the future will come from the farmer who propagates them. Lands are available, millions of acres, but what value is the land to sportsmen without game? It must be restocked and protected and the owner must be justified in doing the things necessary to maintain an abundant supply of game.

But how can this be done? What practical plan can be evolved by which the sportsman can have hunting and fishing, and the farmer or landowner can realize an income from the use of his lands for the protection and propagation of wild game?

The logical way would seem to be a plan by which some agency representing the sportsmen could contract with the farmer or landowner for the hunting and fishing rights on his property, and pay for the privilege on the basis of game produced and taken on each individual property. The rental value, or hunting and fishing rights on a tract of land producing a thousand quail, and the bag limit of green trout, is certainly in excess of that of an equal acreage on which only a hundred quail are produced. The power of land to produce game should be the basis of compensation for its use for hunting and fishing. The price per head for game produced and taken to be paid for the privilege of hunting and the matter

of keeping the records are simple details. The agency would pay the landowner and collect from the sportsman either in the form of annual dues or daily hunting fees, as are charged by certain private preserves. The agency or club would also provide all necessary facilities and maintain contact with the sportsmen, and cooperate with the farmer or landowner in working out plans, in securing necessary data, and in every way assisting him in producing more game.

Such a plan will make field sports available to millions of sportsmen, and at the same time provide a logical way by which the farmer or landowner may realize an income from his lands by developing its wild life possibilities, thereby creating a new source of income for the landowner. - W. L. Brown, in the Louisiana Conservation Review.

COST OF HELD LINE

Briefed from R-1 Circular of June 10, 1932

Cost data based on 64 representative fires of last season in the White Pine and Lodgepole Pine types offer food for serious thought.

Three features stand out in these data: The first, that mop-up activities represented from 50 to 80 per cent of the fire control job on these fires; the second, that to build trench by plow required less than half the man hours needed for a hand operation and reduced the total man hours on the job by a substantial percentage; the third, high costs.

There is no gainsaying the fact that fire control per chain of held line costs too much. Why should it, under any circumstances, require 14 man hours to produce and hold one chain of held line anywhere? Less than five feet per man hour? A staggering fact, isn't it? Think it over! Why? Why? Why?

What can we do about it? As a first step let's take advantage of plow speed on every fire, no exceptions, night or day, to reduce the amount of trench that we must build. Certainly, the faster we can get around a fire the shorter and less costly the line should be and the shorter the line the less of that tremendously costly mop-up job.

It seems that most any kind of a plow outfit should be able to plow eight chains of line per hour, provided the line is cleared so that the outfit need not stop. Watch one operate. Judge for yourself. Why do we not get that production? Few such figures show up in reports.

Point one, then, is to get plows to every crew fire. Point two, put them to work "Right now and keep them going ahead." No exceptions. Put enough steam into the right-of-way job to keep plows moving steadily. This may mean either better planned work and better management or more men. I believe thoroughly that better plans and better management can do the trick. The simple matter of stringing men out to enable them to work free of interference of fellow workers and the prompt weeding of the nonproducers and low producers will help measurably in getting better speed and lower costs. The elimination of unnecessary chopping or sawing down of live trees will contribute a lot more.

Point three is to dig down deep for facts about that 80 per cent of mop-up time and find out a few "whys" about it. How much of that tremendous cost figure is due to keeping an overburden of men on the job after control has been accomplished? How much of it is due to poor organization and low production of mop-up forces? How much is due to the doing of unnecessary things?

Point four is to be certain that the things we do in 1932 are in harmony with 1932 needs. Very obviously, a difference exists between the necessities of the easier years and harder years. Let's get all of our fires mopped-up to a point of safety within the first

work period, and this failing, do it with the best possible dispatch thereafter, but keep a sensible balance doing so. As one major point in this, let's never put more men on a job than from which the available overhead can get good output, and let's be certain that the overhead is ample and that it knows it's stuff.

LOUISIANA GOES MISSISSIPPI ONE BETTER AND HAS SECTIONS 37, 47, 57, AND EVEN 77

By G. H. Lentz, Southern For. Exp. Sta.

If Ranger Riebold, assigned to the new Homochitto Purchase Unit in Mississippi (See E. E. Carter's article in June 6, Service Bulletin) had been working in certain portions of Louisiana, he might easily have found Section 47, 57, or 77, but he would have had difficulty in assigning it to a particular township. Paul Bunyan never logged in the Mississippi Delta, so far as we know, and it was probably due to the scrambled land lines that he never ventured into these alluvial lands.

The old Spanish regime in Louisiana realized the full value of river frontage and in parcelling out land grants used as a base line the meandering course of the Mississippi, or the equally sinuous Atchafalaya River. The result is a scramble of sections, lots, and narrow strips with a weird system of numbering. For example, Section 44 adjoins section 79 in Pointe Coupee Parish, where the tangle is so bad that the Land Office surveyors passed the Parish over and never attempted to apply the rectangular system of sections containing approximately 640 acres.

In Avoyelles Parish the Land Office surveyors seem to have made a noble effort at rectangular subdivision, for the eastern half of the Parish is neatly divided into the standard 36 sections. But in the western portion of the Parish the old system must have gotten the better of them. Here we find full-sized Sections 37, 38, and 39 and then, along the Red River, in the French settlements around Marksville, and in the famous Bayou de Glaises County, we come upon the old helter-skelter arrangement of squares, rectangles, trapezoids, and even triangles.

If ever Uncle Sam sees fit to create a National Forest in the Delta portion of Louisiana, the poor Ranger placed in charge will probably grow grey haired before he locates all his sections.

DRYNESS - KEY TO STORAGE OF PINE SEED

The riddle of seed storage appears to have been solved by the results of Norway pine tests which have completed their fourth year, and of two tests of white pine seed storage which have run 3 and 2 years respectively. In the case of seeds of this type, preservation of the germinability depends on having the seed thoroughly dried before storage and sealing them against moisture absorption during storage. Storage at a low temperature has everything to recommend it, as has long been believed, but the seeds seem to stand much greater fluctuations in temperature during storage if their moisture content is low enough.

This is better understood when it is realized that both moisture and heat are necessary to respiration, and it is through respiration that the energy of the seed is "burned up" during a long period of storage, although, if very high temperatures are experienced, the seed may spoil through the rancidifying of their fats. Respiration almost ceases below about 40° F. It also drops off rapidly, in the case of white pine, at moisture contents below about 12 per cent, but as there is no sharp line here, it is a matter of bringing the moisture as low as possible consistent with safety. This appears to be at about 6 per cent mois-

ture for white pine seed, and at slightly less than 5 per cent moisture for Norway pine seed, but the exact optima need to be determined by further tests. The above moisture contents correspond with complete drying in atmospheres of 30 per cent and 25 per cent relative humidities, respectively.

In other words, if white pine seed is extracted by opening the cones in the sun, it is desirable to expose them in an artificially warmed room long enough to be certain that they have dried as much as possible at an atmospheric humidity of 30 per cent. Such a humidity is not difficult to maintain when the weather has become frosty. Close control of the moisture need not be attempted until the seeds have dried for some time, when the air moisture may be brought to 30 per cent relative humidity and maintained at that point long enough to permit the final adjustment to be made. In a room kept at 70° F., such a humidity means a psychrometer wet-bulb depression of 17°.

When either white pine or Norway pine seed is extracted by artificial heat, the chances are good that the seed will be dried enough to keep well. Moisture tests may be made to see whether the drying process has gone far enough for the best results, or possibly too far. It has actually been shown in large-scale operations that kiln-extracted white pine seed was greatly superior to sun-extracted seed after periods of 1 to 3 years, apparently for the reason that the sun-extracted seed was put into storage with too much moisture.

In the Experiment Station tests, white pine seed has been kept for 3 years with its vitality unimpaired when both low moisture and low temperatures were used, and with only slight loss of the properly-dried seed at any temperature up to that involving normal summer heat. Norway pine dried at 20-25 per cent relative humidity has lost none of its vitality after 4 years when kept at 32-34° F., but the seed stored in a cellar has lost one-seventh and that in a shed more than one-half of its original germinability. - Lake States For. Exp. Sta. Technical Note

YE EDITOR DISCOVERS

The Agricultural Appropriation Bill was finally agreed upon by both houses and signed by the President July 7. Allotments had already been made to the Regions subject to final passage of the bill.

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Members of the Branches of Operation and Accounts are running back and forth and round and round, occasionally muttering to themselves "The field must have some sort of an interpretation of the provisions on furloughs contained in the recently passed Omnibus savings bill. So far, however, the decision has been that anything that could be given to the field at this time would be worse than nothing at all, and the effort has ended up by a fresh attempt to prepare submissions to the Comptroller which would get through to him and be acted upon promptly, if possible. No decision has yet been announced by the Comptroller which would serve as the basis for working out the intricate instructions which will be necessary to apply the bill.

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The Allegheny Forest Research Advisory Council, at its meeting on June 25 at headquarters of the Kane experimental forest near Kane, Pa., passed the following resolution:

"The Allegheny Forest Research Council is aware that a flood of criticism, amounting

often to abuse and calumny, is now breaking over all governments - local, state, and federal, and tends not only to destroy public faith in their services, but also to dishearten these services and lower their efficiency. The Council believes that constructive criticism, leading to every possible economy in government, is highly desirable, but that criticism leveled indiscriminately against all government activities and services is indefensible. It also believes that the overwhelming share of merited criticism is incurred by those governmental agencies which are dominated by partisan politics, and in which officials are chosen on a basis other than demonstrated capacity to handle the job. The Council therefore declares its firm belief that the Civil Service system of selecting Federal employees should be forthwith extended through all Federal departments and independent offices."

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Momentarily at least, there is ground for jubilation over the fire record of the Regions for the first half of the calendar year 1932. Fifty one thousand five hundred and fourteen acres have been burned as against 96,228 acres in the first half of the calendar year 1931. The spring season has been relatively easy in most Regions but not in all. Portions of Region 7 have gone through an unprecedented drought. FF expenditures for the first half of the calendar year 1932 were \$135,395 as against \$300,285 for the first half of the calendar year 1931. The intensive preparations which have been made Service-wide to cope with the incendiary problem of the present season, coupled with relatively favorable general moisture conditions, give grounds for the hope that the record of the season 1932 may prove to be the "best ever," all difficulties and factors considered.

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The Shenandoah National Forest has, by executive order of President Hoover, been renamed the George Washington National Forest. Since this region was frequently traversed and in part surveyed by George Washington, it was chosen by Secretary Hyde, upon recommendation of the Forester, as most fitting to be named as a perpetual memorial to the Father of his country.

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The honorary degree of Master of Science has been awarded by Union College, Schenectady, N. Y., to John D. Guthrie, Assistant Regional Forester of Region 6. Guthrie was graduated from Union College with the class of 1902 and received the degree of Bachelor of Philosophy. He received his master's degree in forestry from Yale University. Guthrie was also Captain of U. S. Engineers in the World War, a Chevalier of France, and was decorated with the Order of St. Anne by Russia.

PUBLIC RELATIONS IN R-6

The Public Eye and Ear. The story of forestry was told to approximately 825,000 people during the calendar year 1931 through the major PR activities of this region, according to the annual PR statistical report. This included talks, exhibits, motion pictures, press releases, show-me trips and the cooperative educational campaign.

Talks show 141 given by Rangers and other field men, 35 by Supervisors and 242 by Regional office members; total audience reached, 80,400. Six exhibits were reported by the

field and four by the Regional office, viewed by 108,300 people. Field officers took 768 people on 81 show-me trips.

The cooperative educational campaign put on 324 programs in Oregon and 125 in Washington, a total of 549, reaching 33,758 people.

In addition to the foregoing, ten manuscripts were prepared for radio broadcast. Since it is impossible to estimate the radio audience, they have not been included in the total of people reached.

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The American Legion, Oregon Department, has a State Reforestation Committee, headed by L. C. Morehead, of La Grande, Oregon. The work of this Committee is subdivided into districts, each with a Reforestation Committee. Several Forest Rangers are chairmen or members of these District Committees. Fire Assistant J. G. Clouston, Umatilla, and Ranger E. H. Gordon, Mount Hood, are District Reforestation Committee Chairmen.

The Washington State Department may also have a similar committee, as they considered forestry and reforestation as a project worthy of their active help and support at one of their State Conventions several years ago.

The Legion is a very important element in a very large number of communities throughout R-6. Many Forest officers in this Region are members of local Posts, which means a direct contact with this important and growing veterans' organization.

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Show-Me. Congressmen, college professors, sailors, newspaper men, county and State public officials, business and professional men, chambers of commerce, scouts and students are included in the total of 2,219 people who have been taken on "show me" trips by R-6 Forest officers during the past four years. A total of 284 trips have been made.

In 1928, 64 trips were made, with 673 people; 1929 had 55 trips for 342 people; 1930, 84 trips, 436 people; 1931, 81 trips, 768 people.

Quality rather than quantity was given more emphasis in this year's trips, and most of those reported showed a true comprehension of the purpose of the show-me trip. For instance, there were 25 prominent business men, besides the 217 reported on chamber of commerce trips. Official opinion was recognized by the item of 27 State, county and city officials. The power of the press appears through 15 newspapermen, journalists, and editors. - R-6 Bulletin

GOING UP AND COMING DOWN

The \$50 an hour rates which were paid five years ago for air patrol have come down. The charge of \$16.84 per hour in effect in at least one Region this year shows, among other things, that competition now exists for flying work of any kind.

Region 6 plans to go straight up with an autogiro which they have under contract this year for much of the air patrol to be done in the North Pacific Region. The lowest bid received was \$44 an hour. - E. W. Loveridge



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES, WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Resource

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THEN AND NOW

IN THE LONGLEAF-SLASH PINE REGION

By W. R. Mattoon, Washington

Late in March 1916 the writer left the Washington office to make a survey and study of the longleaf pine belt from North Carolina to Texas, especially to report on reproduction and the chances of another crop of timber. He returned to the office on July 1, having voluntarily annexed to the study the then little-known slash pine. While the virgin stands of the so-called "Cuban" pine had been studied, the only known printed reference to second-growth slash pine was a brief description and a few tree measurements by Dr. Chas. Mohr included in his "The Timber Pines of the Southern United States" (Forest Service Bulletin 13).

In 1916 south Georgia had vast stretches of cut-over timber lands covered with a sparse growth of wire grass and low palmetto bushes with here and there a longleaf or slash pine tree or a small clump of these trees. In the depressions and ponds, slash pines formed narrow fringes of saplings along with cypress. Relatively few longleaf pines were growing in the region from Brunswick west to the Alabama line. Repeated fires and the razorback hog accounted for the sparse longleaf reproduction, and the relative protection from fire in low places for the stands of slash. Extensive areas of denuded cut-over land in southeast Georgia could be bought at \$1 an acre. However, much young growth of longleaf was found in a belt extending across most of northern Florida to Mobile Bay in south Alabama. Throughout the whole coastal region there was little or no interest in a second crop of timber or turpentine and no organized movement against fires.

It is worth mention that in 1916 practically every large timberland owner or company had a demonstration farm and an active land selling or colonization organization. These farms had fine buildings, well-tended crops of legumes, corn, and cotton, show herds of livestock, and orchards of pecans and satsuma oranges. In the words of some wise native, "These farms showed what anyone could do with plenty of brains, fertilizer, and money."

Now in 1932 - sixteen years later - one may ride for hundreds of miles in the coastal plain from North Carolina south and west to Texas through broken but extensive young merchantable forests. The trees are mainly longleaf and slash with some loblolly. The "center of gravity" of the commercial forest industry is probably in southeast Georgia, where slash pine forms at least 60 per cent of the stand. Everywhere turpentering is going on. The larger trees were slim saplings in 1916 and not much in evidence. One now sees dense pine

stands of many different ages mostly up to 28 years but some up to 35 and 40 years. The explanation apparently lies in the change of local public sentiment toward timber-growing as the most profitable form of land use for large areas of land and the keeping down of woods fires, and, finally, the buying-up of many large tracts of land by private individuals and companies for timber and turpentine production. One company in southeast Georgia has bought over 250,000 acres. Incidentally, the writer has seen his prediction made in July 1916 come true, namely that slash pine has a very high potential economic value for forest management. For two years he had to defend this position alone, the first word of assurance or confirmation by a forester coming two years later from Dr. Austin Cary when he returned to Washington, D. C., in the early summer of 1918 from his first season south.

The decade of 1920 to 1930 marks the period of rapid development of commercial timber growing in the southern pine belt, and along with it the establishment of many State forestry departments and cooperating extension forestry agencies.

But what of the winter of 1931-32? In the coastal belt from North Carolina to Florida it is fast going down into history as marking a decided set-back in the past substantial cumulative results in protection and natural reforestation. The late summer and fall of 1931 were very dry. No rains came during the winter, resulting in unprecedented lack of moisture. Severe fires have swept over a vast area of the pine lands in eastern North Carolina and South Carolina, southern Georgia, and northern Florida. Owners of timberlands have in some cases almost given up in despair as a result of the frequency and severity of the fires. The Osceola National Forest in northeastern Florida near the Georgia line has not escaped but suffered heavy losses of young forests just coming into commercial sizes for turpentine and timber.

Other causes than the drought appear to be in part economic and even political in character. It is generally acknowledged that many of the fires are incendiary for the purpose of collecting wages from "rich" companies or Uncle Sam. Another common cause for burning is believed to be an attempt to settle real or false grudges with former employers. Alas! the idea still unfortunately persists that woods fires kill boll-weevils, whereas a farmer might about as well set fire to his barn hoping to kill rats. In the old days of virgin forests, fire passed over the open shaded ground without great damage. The mind of the average person is "set," and even people of good intelligence fail to realize that nowadays with nothing left but young forests which are often dense the damage by fire may be a hundred-fold greater. There is also the utterly lawless element who resent all attempts to limit the common use of personal property, and for whom some say there is only one sure remedy.

Thus, last spring, we were "looking through a glass darkly." However, those acquainted with the rapidity of timber reproduction and growth in the South have good reason for believing that with a return of normal rainfall conditions much light will appear in this rather drab picture.

MORE EARLY FIRE!

By E. N. Munns, Washington

Various references have been noted as to the Indian practice of "fire hunting" in the woods. Usually this practice has been found where yellow pines occur rather than where the white pines are found. If we are to believe a rather keen observer, one who is above the usual run of such men, we must believe that the practice also existed in the white pine region of New England, for we find him making the following statement in 1775, and with particular reference to New Hampshire. It is of course possible that this applied only to

the region where white pine predominates and did not apply to those other sections of the State where the white pine was found only as an occasional tree among the hardwoods. Apparently also the practice of fire hunting was followed by the whites as the Indians gradually faded from the colonial picture. It is to be noted that such fires were not controlled fires, but burned ad lib.

"There is an act of parliament, I believe, which prohibits, under pain of certain fines and penalties, the cutting down, or destroying of any white pine tree, of specified dimensions, not growing within the boundaries of any township, without his majesty's license, in any of the provinces of New England, New York, or New Jersey; a restriction absolutely necessary, whether considered as securing a provision for the navy, or as a check upon that very destructive practice, taken from the Indians, of fire hunting. It used to be the custom for large companies to go into the woods in the winter, and to set fire to the brush and underwood, in a circle of several miles. This circle gradually contracting itself, the deer, and other wild animals, enclosed, naturally retired from the flames, till at length they got herded together in a very small compass. Then, blinded and suffocated by the smoke, and scorched by the fire, which every moment came nearer to them, they forced their way, under the greatest trepidation and dismay, through flames; and were no sooner got into the open daylight again, than they were shot by the hunters, who stood without, and were in readiness to fire upon them. The trees included within the circle, although not absolutely burnt down, were so dried and injured, that they never vegetated any more; and as the fire did not only contract itself inwardly, but dilated also outwardly, and sometimes continued burning for several weeks, till rain, or some accidental circumstance put it out; it is incredible what injury and devastation it occasioned in the woods. I was once a spectator of a similar fire in Virginia, which had happened through accident. Nothing could be more awful and tremendous than the sight. It was of great extent, and burned several weeks before the inhabitants could subdue it. They effected it at last by cutting away the underwood, in wide and long avenues, to leeward of the fire, by which it was deprived of the means of communicating or spreading any farther. In Virginia (and, I believe, the other colonies), there is an express act of assembly, passed in the 12th year of his late majesty, to forbid this practice."

A TREE THAT STRANGLES ITS FRIEND

The "Strangler Fig" of Florida could not live without the aid of another tree, about which it twines like a vine.

By the time it is stout enough to stand by itself, its supporter has been strangled to death. Says Wilbur F. Smith, writing in *The Guide to Nature* (Sound Beach, Conn., spring number):

"Of about five hundred species of trees growing within the United States, about two hundred are found in Florida, and one hundred are not found growing wild elsewhere.

"A glance at the map will show what perhaps many of us have forgotten - that Florida extends one hundred miles south of Texas and five hundred and fifty miles south of California. So it is not surprising to find in this subtropical land trees not found elsewhere within our borders.

"Of the trees in the latter class none is more interesting or stranger in its manner of growth than the strangling fig, a relative of the fig of commerce, the rubber-tree, and the banyan of the East.

"The strangling fig starts life in a precarious way from a seed dropped by a bird, or otherwise carried, where it finds lodgement among the branches of a tree. There it germinates

SERVICE BULLETIN

and sends out roots which grow downward to the ground. These 'roots' branch, enlarge and coalesce until the fig becomes a cylinder around its host, which is slowly but inevitably killed.

"Later aerial roots are sent out, which reach down and become props and new trunks, until eventually all trace of the host tree disappears, and in its place stands the fig.

"A very large fig is growing in Punta Gorda, and on the shore of Lake Okechobee a grizzled old cypress that has withstood the storms of a century is slowly giving up the ghost." - The Literary Digest.

OVERHEAD COSTS, WASHINGTON AND REGIONAL OFFICES

Table showing (1) what per cent of total permanent salaries for each Region are for Regional Office and (2) what per cent of total permanent employees for each Region are in Regional Office. (Washington Office per cents are based on W. O. salaries and number of people compared with totals for whole Service) *

Region	1 9 3 0		1 9 3 1	
	Per cent of total permanent salaries	Per cent of permanent employees	Per cent of total permanent salaries	Per cent of permanent employees
1	27	21	26	23
2	21	21	20	17
3	27	21	26	21
4	19	19	20	18
5	25	22	26	23
6	23	20	22	21
7	23	21	22	18
8	44	30	43	37
9	23	18	28	21
W. O.	6	7	7	7
Total	29	24	29	26

* Excludes F.H. (except for R-7), Research appropriations, Cooperative Fire (Forest Fire Coop.) and Cooperative Planting.

Total Salaries and number of employees taken from salary statements submitted by Regions for appropriation estimates and overhead salaries and employees, from Forms C-1 and C-2, Regional office Financial Plan.

NATURAL AREAS

The Pine Point Natural Area, a tract of 1,176 acres of wild land within the boundaries of the Chippewa National Forest, Minnesota, was recently designated by the Forester.

E. W. Tinker, Regional Forester, announces that the area was selected in consultation with Raphael Zon, Director, Lake States Forest Experiment Station, and is interesting from both a scientific and historical standpoint. "The cumulative investment in these projects will soon exceed the intrinsic value of the timber stand," Tinker says, "and protection from fire enters into their selection."

In his recommendation of this tract as a Natural Area, Supervisor J. M. Walley points

out that while general and promiscuous use by the public will be incompatible with the scientific and educational uses, this Forest has long been the home of the Chippewa Indians, and it is considered that the Red Man, the original American, is an integral part of the background and wild land conditions. The automobile is largely replacing the horse, and there is very little grazing, but the Indians still turn their ponies loose in the spring to roam until fall. They will continue to hunt and trap on the Indian allotments and build campfires along the shores while fishing in the late fall when the whitefish are spawning. The Indian is generally very careful with campfires, building them small enough to hover around and keep within control. - From R-9 News Release

WHAT IS A BUG TREE?

The bug job on the Sierra Forest last fall and this spring was beset with many troubles. Sometimes it was too dry to burn the infested bark and then heavy storms interrupted the work. The worst troubles, however, came in spotting trees for treatment. Warm weather last fall kept the bugs active and growing up to the first of November. A partial new generation emerged during October and promptly attacked trees in the areas that the crews had just cleaned. These newly attacked trees were hard to find. Further, some trees were attacked only in the upper part of the stem and still others had the tops killed by ips and had little or no dendroctonus beetles in them. The partial emergence in the fall called forth a lot of hair-line decisions as to whether a tree was worth treating in order to get the bugs which remained.

Altogether, the local officers are strongly of the belief that early spring work is more effective and cheaper than late fall work and they have figures to support their contention. Among other things, they note that in the spring they get a lot of help in spotting from the woodpeckers "which during the winter pick out the heavily infested trees as their lunch or dinner tables. Unfortunately the woodpeckers seldom make a clean job of any one tree, but if they have worked on a tree at all the chances are that that tree is loaded with bugs." - E. E. Carter

YE EDITOR DISCOVERS

Government employees have been much disturbed by the prospect that instead of being able to take their payless furlough as accrued, in the same manner that annual leave would be taken and governed by the requirements of the work and the convenience of employees, they will be required to take Saturday forenoons off, which would use up all the furlough time for the year. The five-day week system would, of course, be totally unworkable during the fire season, or in places where farmers and permittees expected service on Saturday the same as on other work days. In some offices the five-day week would be workable so far as clerical forces are concerned, but if an employee needed to attend the funeral of a relative during work days he would be compelled to take leave without pay in addition to the prescribed one month furlough, or the 2½ days pay deduction for each month.

The five-day week system is not required by the Comptroller General's decision but is left to administrative judgment. The President has left the decision to Department heads. It is hoped that sufficient flexibility will be permitted so that the complications due to a five-day week in the Forest Service will not be added to the other new problems with which it is necessary to struggle, but no decision has as yet been announced by the Secretary of Agriculture.

The Comptroller General's decision of July 8 regarding the furlough provides in part as follows: "That a minimum of $1\frac{1}{4}$ days' pay ($8-1/3\%$) will be deducted from each officer and employee to which Section 101 (b) is applicable on each semi-monthly payroll or voucher - regardless of whether the officer or employee has or has not been absent during such period - a proportionate deduction to be made where the pay period is greater or less than a half month. When an officer or employee is absent on furlough for more than one working day during a semi-monthly period, deduction will be made at the rate of $1\frac{1}{4}$ days' pay for each working day of such absence (fractional parts of a day to be considered as a day for this purpose, for instance for an absence of 2 days and 1 hour during such pay period, deduction will be made of $3\frac{1}{4}$ days' pay but only the actual time taken to be charged as time absent) except that if the aggregate of all absences on furlough from July 1, 1932, to the end of the pay period involved, does not exceed that number of working days for which deduction theretofore has been made, the deduction for such semi-monthly pay period will be only the minimum deduction of $1\frac{1}{4}$ days' pay, and when pay has been deducted for 24 working days at the rate of $1\frac{1}{4}$ days' pay per day (one month's pay), no further deduction will be made on account of furlough under Section 101 (b) and any additional absences, except on sick leave or military leave when authorized by law or regulations having the force and effect of law, will be regarded as absence without pay and charged for in accordance with rules and regulations heretofore applicable to such absences."

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The forestry program which the U. S. Forest Service has been carrying on in the Virgin Islands was discontinued on July 1. E. V. Roberts, who has been carrying out the reforestation work there for the Service, has returned to the mainland and will be permanently assigned to the requirements phase of the Forest Survey with headquarters in the Washington office. Due to the unusually severe climatic conditions of the Islands, Roberts reports that in the attempt to replace areas of worthless bushland with trees of value it was found that the costs precluded the possibility of an adequate return. The forestry program in the Islands will be continued by the Insular Agricultural Station, emphasis to be placed on the development of mahogany groves, windbreak planting, and pasture trees. The equipment and property of the Forest Service, including two plant sheds each with a capacity for handling over 100,000 seedlings per year, have been turned over to the station and funds have been requested from the Insular Government to carry on the forestry program under the station's supervision.

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Various organizations throughout California are being asked to report to the Conservation & Fire Prevention Commission, State Chamber of Commerce, San Francisco, any violations of the State law which makes it unlawful to throw burning materials from a moving vehicle. These reports are part of a campaign inaugurated this year by the State Chamber of Commerce, State Division of Forestry, and the U. S. Forest Service to reduce forest fire losses in California. They will be made on a specially prepared post card. A courteous letter will be sent each violator, calling attention to his infraction of the State law and asking him to give his full cooperation in the future by exercising due care with fire. No prosecutions will be instituted as a result of these reports, but it is hoped through such letters to gain many staunch friends for forest protection and fire prevention. The American Legion is cooperating in carrying out this project.

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A round table discussion of findings from recent soil erosion investigations will be presented during the National Farm and Home Hour Wednesday, August 10, over the NBC's eastern network. Perkins Coville of the Forest Service, L. A. Jones of the Bureau of Agricultural Engineering, and H. H. Bennett of the Bureau of Chemistry and Soils will participate.

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The name of the Crater National Forest in Oregon has been changed, by executive order of President Hoover, to the "Rogue River National Forest."

SUPERVISOR KINNEY WRITES REGARDING PLOW UNIT DEMONSTRATION

Dear Mr. Kelley:

Please accept thanks for your Plow Unit demonstration at our Ranger's Fire Meeting.

Mr. Crowley gave an excellent demonstration of plow unit work. He plowed down an exceptionally steep slope on the edge of the Nezperce (Salmon) fire. One short stretch of 84 per cent slope by abney and over an average of around 60 per cent for a half mile of much worse than average fire line construction. Around a half mile was plowed in 57 minutes of actual time, through some rocky going and much steeper than heretofore considered plowable by many. Plowing uphill was also demonstrated up to a 30 per cent slope. This plow unit demonstration in my mind was one of the high lights of the Fire meeting, and I got more out of it myself than anything else developed at this particular conference.

Another interesting item of the plow unit demonstration was that on the actual fire 330 man hours of night line construction was taken on the same stretch that the plow unit constructed in 57 minutes with an estimate of 75 total man hours plus 1 hour of plow unit work. Of course the last case was in moist and soft going, due to the time of year, and also day work so that the comparison is not exactly comparable, but interesting nevertheless.

Very sincerely yours,

Signed JOHN N. KINNEY

Forest Supervisor (Salmon)

NEGLECTED PLANTATIONS SELDOM SUCCESSFUL

Studies by the Lake States Forest Experiment Station show that sod, hazelnut brush, and aspen present great hazards to forest seedlings which may and often do greatly curtail, if indeed they do not entirely destroy, the future usefulness of forest plantations. White grubs, which infest sod, feed on the roots of young trees and when a drought occurs the crippled roots are unable to keep the plant alive. Hazelnut and aspen literally choke out young conifers, often even after they have obtained a height of 20 feet or more.

To illustrate the point, two examples from the many plantations examined by the Station may be cited. A pine plantation was established 15 years ago on land burned clean the year before planting. Today only 20 per cent remains pure pine, 55 per cent is a mixed forest of pine and aspen, and 25 per cent has reverted entirely to aspen and brush. Another coniferous plantation, established about the same time in a hardwood stand, has completely disappeared except for an occasional lath used to mark the trees.

In any large scale forest planting, provision should be made for care of the plantations, for if aspen and brush are allowed to crowd out the desired trees the entire effort in planting becomes fruitless. - Technical Note, Lake States For. Exp. Sta.

NOTICE

With this issue, the Service Bulletin will be issued every two weeks instead of weekly, as formerly. The limitation on procurement of paper carried in the Economy Act has made necessary a curtailment of duplicating and mimeographing, so the Service Bulletin is doing its bit in this way to help the situation.

THE MYTHOLOGY OF WOOD

The fallacy that hickory, or other heavy hardwood, has a higher fuel value than pine: This may be true as between a cord of hickory and a cord of pine, as the cord of hickory weighs more; but pound for pound the pine gives off more heat. Resinous woods in general have a higher heat value per pound than non-resinous.

The fallacy that sapwood of longleaf pine contains more resin than the heartwood: This opinion might be formed by one who had seen the transparent beads of "gum" form on a freshly-cut sapwood surface but not on the heartwood. However, although resin is manufactured in the sapwood it is stored mostly in the heartwood and will not flow from the freshly cut surface of the latter. - The log of the Lab.

CALIFORNIA'S WATERSHEDS COVER LARGE AREAS

The mountain watershed area of California, where the bulk of the rain and snow fall, covers nearly 40 million acres, according to a report by Governor Rolph's special water conservation committee. Federal and State forestry organizations are charged with the management and protection of foot-hill and mountain areas aggregating 62 per cent of the total area of the State and embracing the important watersheds upon which the valleys, towns, and cities depend. The heaviest precipitation of the State falls between the elevations of 4,000 and 6,000 feet, largely within the 18 National Forests of California. The report states that greater protection from fire for the forest, cut-over and chaparral-covered lands, and regulation of grazing on the public domain are essential if any permanent statewide program of water development is contemplated. - R-5 "Chips from the Forest."

BANKERS KNOW VALUE OF SOIL EROSION CONTROL

The value of controlling run-off water to prevent soil wash on rolling cultivated lands is recognized by financial interests engaged in loaning money on farmlands, reports the Department of Agriculture. Two federal farm loan banks require that all rolling land upon which they make loans be terraced. One of them employs an engineer to check over farms on which it has loans, to see that all terraces are properly built and maintained. During the last year three large insurance companies have employed engineers to direct the work of controlling erosion on farms that these companies have taken over, which not only indicates a realization of the benefits of controlling run-off water but also suggests that it may be difficult to obtain long-time loans on farms where no effort is made to prevent soil washing away. - R-3 Bulletin



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY **** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Theodore Roosevelt

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MICHIGAN HONORS THE PIONEER LUMBERMEN

By G. K. Fenger, Huron

Who today can give us a picture of Michigan's vast timber resources in the year 1830, when the first sawmill was built near Flint? Those millions of acres of virgin Norway and white pine, and hardwoods, tall, straight, and clean boled—a scene now difficult of appreciation. When the saw and axe began to bite the trunks of those fine specimens it was not a harvest, but rather a case of necessity to make room for crops and building sites. The hardwoods were first encountered, and hundreds of small mills grew up in the southern part of the State in the years that followed. The upstate pine stands were too far removed from the pioneering civilization. They were a dark, unexplored mystery. But in 1850 the white pine harvest started in earnest. Settlers were flocking to the black loamy soils of the treeless prairie States. They needed shelter; they needed homes and towns; and to the timber resources of Michigan, Wisconsin, and Minnesota they looked for their lumber requirements. The industry expanded rapidly and the demand increased until 1880, when Michigan was known as the world's greatest lumber center. By rail and water, millions of feet of lumber went South, East, and West.

Nature had provided well but could not keep up the pace against an onslaught of this magnitude. By 1890 the "inexhaustible forest" had dwindled. Fires had followed the axe, leaving blackened stumps. What had been nature's temple had become a desecrated waste. While much has been said of the ruthless despoliation and corruption of the early lumbermen, one must recall and reconsider that this took place at a time when there were no forest policies and no conservation principles. Theirs was a lawless land, a wilderness in which each man was out either to survive or go under. The pioneer lumberman, nevertheless, contributed much to the development of the Middle West.

From the planting to Norway pine of ten thousand acres along the banks of the AuSable River within the Huron National Forest, came the thought of erecting a memorial to the Lumbermen of Michigan who, with brain and brawn, contributed materially to the progress and development of the Middle West. Gradually the idea developed, and in May 1929 the committee of lumbermen and leaders of the plan decided upon the fundamental motif. Robert Aitken, New York sculptor, was entrusted with the designing and production of the memorial, which was to consist of three heroic figures in bronze representing the cruiser or landlooker as he was then called, the sawyer, and the riverman. These figures were to typify the various phases of the lumber-

man's work as it existed in the old days, and each figure was to be a composite likeness of typical characters selected from several hundred photographs. The site chosen was on the bank of the AuSable River, down which thousands of logs went their way in those early days, and at the head of the Thompson Trail, which also had a lumber history.

This plan became a reality when, amid four thousand reminiscing lumbermen and others from all parts of the State, the \$50,000 memorial to the pioneer lumbermen of Michigan was unveiled, dedicated, and presented to the Forest Service July 16, 1932.

William B. Mershon of Saginaw, prominent old-time lumberman, who in a large measure was responsible for the success of the plan, traced the history of the work. He said, "To me it is a great satisfaction to be able to pay tribute to the memory of the pioneer lumberman. He played his part, which was a necessary part, well. The forest was created for use and he provided for it, but received little recompense." Mr. Mershon called attention to the three, nine-foot bronze figures, each with his characteristic equipment, the compass, peavey, saw and axe, and clothed in the raiment that marked his profession and work, which were mounted on a 20 ton granite base. One side carries the inscription "Erected to perpetuate the memory of the pioneer lumbermen of Michigan through whose labors was made possible the development of the prairie States." The three remaining sides are inscribed with the names of 91 Michigan lumbermen whose lives were closely linked with the harvesting of the State's virgin timber. In closing, Mr. Mershon presented the monument to the Forest Service. Major Stuart accepting it said, "This gift to your Government will incite the spirit of hardiness and adventure in all of us which is so badly needed today." He praised the pioneer lumberman as a "hardy and resourceful soul whose accomplishments were great."

Governor Brucker depicted the lumberman of old as the man through whose efforts the growth of our country was made possible. He called attention to the importance of reestablishing these old pine stands by planting and declared that, while it has been necessary to curtail expenditures, every effort will be made to continue the State's planting program.

The site of the monument was officially designated for historical, educational, and recreational use on May 12, 1932, by R. W. Dunlap, Acting Secretary of Agriculture, and henceforth all other incompatible National Forest uses will receive subordinate recognition. It is also included within an area of high recreational value, where the discharge of firearms has been prohibited.

May this memorial withstand the onslaughts of the treasure hunter and the ruthless vandal, that these three pioneers may have the pleasure of a forest environment that equals that of 1830, and meanwhile be an inspiration for thought and reflection of the far-reaching effect of this period of American history!

LIVER FLUKE

By C. E. Rachford, Washington

The fluke disease of sheep, goats, and cattle has been known to exist for a great many years. It was formerly thought to be a farm disease and confined to areas below 3,000 feet in elevation, in damp ground or near streams. During recent years investigations by the Bureau of Animal Industry have shown that it has become widely distributed, and new infected areas are constantly being located. A recent map submitted by the Bureau of Animal Industry indicates that within the past 20 or 30 years the disease has spread in the Rocky Mountains, the Pacific Northwest, and the Pacific Coast to an alarming extent. The map indicates that few areas adjoining National Forests are free from the disease.

With such a general distribution, and recent discoveries that lands at elevations of





10,000 feet and under have become infected, together with information on actual conditions on meadows and slow-moving streams, it seems possible that National Forest ranges may have become more seriously infected than we have heretofore believed to be the case. Not only is such an infection serious from the standpoint of livestock producers, but the danger of spreading the disease to wild ruminants is rather serious. It is the judgment of experts in the Bureau of Animal Industry that the fluke disease may have been the cause of serious and otherwise unaccountable losses in deer and elk. Definite information on the extent to which the disease has spread among wild ruminants can only be determined by careful investigation of animals killed or found dead.

The treatment of infected areas consists of the use of copper sulphate (bluestone, blue vitriol) in a dilution of one part to 1,500,000 parts of water. There is some question as to whether streams can be treated without killing fish, and the Bureau of Animal Industry is now carrying on investigations in this respect.

A very interesting and instructive description of the disease and methods of control as been prepared by Dr. Robert Jay, Associate Veterinarian, Zoological Division, Bureau of Animal Industry. A supply of these instructions will be forwarded to the field upon request. The concern of the Forest Service at present is in definitely locating infected herds and areas on the National Forests.

The host intermediate of the fluke is the fresh water snail, which is spiral in shape and has its opening at the observer's right side when the peak of the shell is held uppermost. It is found in marshy ground, ditches, pools, and slow-running water, and shows a preference for mud. In case sheep grazing on the National Forests are known to be infected, it might be desirable to collect specimens of these snails and forward for identification by the Bureau of Animal Industry. Containers will be supplied upon request.

HISTORY REPEATING ITSELF AFTER A GENERATION

By Louis S. Murphy, Washington

The account of the appointment of volunteer forest fire wardens in Montana and Idaho, in the Service Bulletin of July 18, calls to mind a similar venture in Maine. As long ago as my first contacts with the Maine protection organization -- the beginning of Weeks Law, now Clarke-McNary, fire cooperation in about 1912 -- this method was employed as a means of stimulating the interest of key men who could in a pinch give the fire service strong moral and financial support and even get out into the fire camps to handle employment, commissary, and like duties. As a class they were what might be called "graduate woodsmen," for the most part men whose careers had started in the woods and finally landed them in executive positions outside but who still had sufficient woods contacts to sustain their interest and influence there. A few were politicians of some standing and influence.

Formerly they had the same authority to incur expenses as the regular woods wardens had and their names were carried in the general roster of the Service, indiscriminately mixed with those of the honest-to-goodness working force. It made an imposing looking organization on paper, but in many cases these men cost the Service dearly. Not infrequently, when a bad fire got under way on or was threatening the lands in which they were directly interested, they would get panicky and run up lavish suppression bills. Furthermore, on occasions, when a bad fire season was on and "everybody was doing it," this group put the Forestry District Fund in the red. Because these men represented the companies who paid the taxes which supported the Forestry District Fund, however, they felt they had a vested right to spend it.

That is all changed now, or largely so. A close check on expenditures through Federal

budget supervision and the shift of emphasis from suppression to pre-suppression and prevention activities which called for the concentration of authority into the hands of fewer men devoting their entire time during the fire season, have completely displaced these supernumerary men from direct and active participation and control. They were first segregated about 1918 into a class called "Chief Wardens at Large" and the next year assumed the title of "Honorary Chief Wardens," of which there were 29 in 1931. In addition there is another similar class called "General Deputy Forest Fire Wardens" comprising some 150 lesser and for the most part local key men outside the regular organization. None of the men in these classes have any authority of their own to initiate independent action involving expense.

Thus the old "Pine Tree State" which led the way in 1905 in establishing mountain lookout stations early set another precedent which has since been followed by New York and other States in the East and elsewhere, with Montana and Idaho as its most recent followers. Doubtless, though, the latter did not realize that such a hoary precedent existed but thought they were embarking on something brand-new.

WHAT PRICE BURNING SAWDUST PILES?

By R. E. Fields, Custer

On July 26, 1931, the Peabody fire swept across the Ekalaka Division of the Custer Forest, covering 3200 acres before it was stopped. The DeLoss Hall sawmill was fairly in its path. After the fire had passed over, the only remains of the mill were one 12 x 16 cabin, a heap of useless machinery, and a huge pile of sawdust, well ignited.

Two inches of rain, starting three days after the fire, had little effect on putting out the fire in the sawdust. Two months later the sawdust was still burning, but not enough to diminish appreciably, the size of the pile, which had a bottom diameter of 75 feet, a top diameter of 10 feet, and a height of 40 feet. Eight hundred M. b.m. of timber went into its making. The sawdust was very wet, water could be squeezed out of a handful of it, and only an outside coating about one foot thick was dry.

This burning sawdust was very much of an obstacle to rebuilding the plant. It was also a constant menace and fire hazard to the forest under Ranger Clapp's care. Clapp and Hall met to discuss this difficulty and the final outcome of their conference is given in Ranger Clapp's report as follows:

"It was decided that rather than to try and put the fire out an attempt should be made to hasten the burning. To do this a blower of some sort, which would force the fire through the pile, was to be tried out. Accordingly a Fordson tractor was borrowed and a Ramey #2 sawdust blower was assembled. The blower was mounted on skids to facilitate its being moved from place to place. Twenty-five feet of galvanized iron stovepipe was riveted together and attached to the blower. The blower was then connected up to the Fordson and placed on the windward side of the burning pile, and thus operations were started.

"At first the pipe was so placed as to direct the air stream against the center of the pile, with very poor results. In fact by the end of the day so little progress had been made that it began to appear as if the job would be a long and expensive one. When the blower was placed in this position the sawdust would not burn even when wood was used to generate more heat. Constant cave-ins put out the flame and left only a smouldering mass. This day's work was not wasted, however, as we learned that it was necessary to move the outfit with each change of the wind to avoid excessive heat and smoke. We also learned that too strong a draft simply blew the fire out. The speed of the engine was then placed at 2000 to 2500 revolutions a minute, which was found to be quite satisfactory for the outfit we had assembled.

"On the second day the pipe was changed so as to direct the force of the draft against the ground at the base of the pile and burning immediately speeded up. From this position the draft seemed to be forced up and over the pile and at times the whole face for a width of ten feet on each side of the outlet of the blower pipe was ablaze. The sawdust dried up rapidly from this excessive heat and at the end of the day an opening some four feet wide had been burned through the entire pile. From that time on no more trouble was encountered and in fifteen days the job was considered completed.

"The cost of disposal amounted to \$90, which represented the wages of one man and the rental of the equipment. The cost per M. feet of sawdust burned was 11 $\frac{1}{4}$ ¢.

"Both Mr. Hall and I are satisfied that this is a quick and economical way to dispose of sawdust. The cost of burning could be materially reduced and operations hastened up by the use of a blower pipe of larger diameter, such as a threshing machine blower pipe. Likewise, the cost could be reduced by using a smaller horse power engine. It is believed that a four to five horse power engine would operate just as effectively. By using a slower speed blower with a larger pipe, a steadier draft could be maintained, throwing a larger volume of air over a wider surface."

Maybe this method has been used to good advantage before, but not to my knowledge. A means to an end and a job well done! - From R-1 Bulletin.

DO IT DIFFERENTLY (From Santa Fe New Mexican)

The State highway engineer announces that the chances are good through Federal legislation to put through a four-and-a-half million-dollar Federal highway program employing 3,000 men. This is fine - especially the chance to give employment to 3,000 men.

And this is a splendid opportunity to stop building sky-line race-tracks whose cost of maintenance is ruinous, which soar and deface the country and which are a public peril. Better not to spend the money than to cover the rest of the State with huge embankments for motorists to plunge off of, and dig millions of tons of earth and rock out of the hills of New Mexico to pile up somewhere else.

There are hundreds of miles of highway where fencing off the empty country around is needless expense. Thousands of dollars can be saved along with the scenery by refraining from the senseless chopping down of thousands of trees for forty feet on either side of the roadway. Tens of thousands can be saved by using stretches of old roads instead of paralleling them a hundred feet to one side with expensive new construction. There must be a radical revision of the type of Federal aid roads on which money has been squandered recklessly in the past few years. They are ugly, dangerous, extravagant in cost, impossible to maintain. Bring them back to the ground where they can be properly taken care of and motoring will not be the most hazardous pastime in the catalog.

HIGH SPEED TOOL POLICY IN R 2 Forest Supervisors:

No authentic stories regarding the use of the plow on any Region 2 fires this year have come to my attention, and there is positive information to the contrary on several of them. Forest Officers still seem to feel that the use of a plow as a fire tool is still in the experimental stage. On the contrary, the plow, which has been experimented with and used for sever-

al thousand years, has been thoroughly tried on fires under various conditions of topography, soil and cover, and is a demonstrated success in building fire line. So much so, that I confidently believe if a horse is not available a fire crew would accomplish more dragging a plow around with ropes than working with shovels under certain conditions. When you have a fire, get in the habit of thinking plow right away and get one on the job - unless you know absolutely that it can not be used to advantage.

ALLEN S. PECK, Regional Forester.

THE EDITOR DISCOVERS

On July 26 the Acting Secretary of Agriculture issued instructions on the five day week which in effect leave the decision in each particular instance to Bureau Chiefs. The five day week is favored and the principle is advanced that whenever this plan is possible without detriment to a particular activity or project it should be followed. Appropriate instructions have accordingly been issued to Regional Foresters, and it is presumed that there will be a few construction activities to which the five day week will be applicable. The five day week is, of course, entirely impracticable during periods when the men concerned may be called upon at any minute for fire duty. The Comptroller General has issued a series of decisions which seem to throw additional obstacles in the way of the five day week, apparently making it doubtful whether even those Departments, such as the Civil Service Commission and the Department of Labor, which have installed the five day week plan can actually continue it. This adds one more element of confusion to the complicated situations arising from the administration of the economy act.

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While the economy act was still pending and when the Service attempted to secure an exemption of short term workers on the National Forests from the five day week-furlough-pay cut provisions of the act, officials in the Department believed strongly that such an exemption was unnecessary because the act would never be extended to cover such employees. The contrary proved to be true, and step by step and item by item the economy act has been held to apply to all short term workers. It has now reached the point where even fire fighters hired by the hour are held to come within the scope of the act, and, to make administration of legislation more difficult, it is necessary to apply the pay cut to the estimated value of subsistence furnished fire fighters as well as the cash wage at which they were employed. The act does not apply, of course, unless the wage rate, including value of subsistence, is equivalent to more than \$1000 per annum. So far the Comptroller General has held that reductions in wage rates of short term employees and fire fighters made at the beginning of the 1932 season do not satisfy the requirements of the act. Reductions or furloughs specified by the act it is held must be applied to wage rates in effect on June 30, 1932.

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A systematic investigation of the woods of the entire world by the International Association of Wood Anatomists is now well advanced, according to a statement recently made public by the secretary-treasurer, Professor Samuel J. Record of the Yale School of Forestry. The organization has a membership of fifty scientists in eighteen different countries under the direction of an executive council of eleven members of eight nationalities.

The largest and most comprehensive collection of woods in existence at present is at the Yale School of Forestry. It contains over 21,000 fully catalogued samples representing over

6,000 named species of about 2,000 different genera (counting all oaks as one genus, all pines as another, and so on). Cuttings large enough for scientific studies have already been made of selected groups and forwarded to scientists in several institutions in the United States, Canada, England, Holland, Germany, France, Russia, Japan, Australia, and New Zealand. Another large collection is at Buitenzorg, Java, with 15,000 samples of Dutch East Indian woods. Many of these have already been contributed to the Yale collection and a recent proposal has been made to contribute a much larger number so as to make them more readily accessible for co-operative studies sponsored by the Association. There are also large collections in the Philippines, India, Federated Malay States, as well as in European countries, and hundreds of samples have already been distributed for special research.

Comparison of the lists of materials in the different museums has brought to light the important gaps to be filled by expeditions to the forests of little known regions. The forest services of European countries with colonial possessions are encouraging their field forces to send in all the different kinds of trees they can find and to accompany the wood samples with leaves, flowers, and fruits so that they can be accurately identified by systematic botanists. Field Museum of Natural History (Chicago) kept a collector in the Peruvian Amazon region for a year and brought out over 2000 samples of woods, all of which have been made available to the members of the International Association. The Firestone Plantations Company maintained a member of the Yale forestry staff for a year in Liberia, West Africa, so that samples of the different trees could be secured as the forest was being cleared from the site of its rubber plantations. The United Fruit Company has given generous assistance in the collection of woods on and near its holdings in Central and South America.

The first step toward uniformity of botanical terms has been the making of a dictionary, now undergoing its second revision, which is in English, French, German, Dutch, Spanish, Portuguese and Polish. This will be made the basis for a book in which every term will be fully illustrated and described. Experts in all parts of the world are collaborating and far-reaching results are anticipated. Eventually it will be possible to identify almost any piece of wood with certainty.

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One of the benefits of growing timber on the farm was illustrated when all the lumber used in a recent new addition to former President Coolidge's farm house near Plymouth, Vt., was cut from his own land and prepared for use at the village sawmill. The ancestral nine-room house is a frame structure, over 100 years old and still sound and sturdy.

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State forestry departments last year distributed more than a hundred million trees for forest planting. Of the total number of trees distributed, 25,510,052 were sent out for farm planting, 52,507,690 trees were planted on State lands, and 24,839,109 were distributed for planting on private forest lands other than farms. Planting of all three classes gained nearly 30 per cent over 1930, when the total distribution was 79,319,000 trees.

In total trees distributed for planting on all classes of lands, New York led with 41,211,500; Michigan was second with 23,871,248; Pennsylvania, over 8 millions; and Wisconsin, Ohio, and Massachusetts over 3 millions each. Indiana and Connecticut each passed the 2 million mark.

Pennsylvania led in farm forest planting, with 6,028,835 trees, followed by New York with 4,800,000, Ohio with 1,743,506, Puerto Rico with 1,253,800, and Michigan with 1,238,520. Nebraska, Wisconsin, Tennessee, and Indiana each sent out more than three quarters of a million trees for planting.

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As a means of stimulating interest in timber production on nonagricultural lands, a lumber company has donated to Alabama for a State Forest a tract of approximately 5000 acres. The State Forest will be devoted to experiments in forestry methods of reestablishing and managing timber growth, and demonstrations of results.

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The name of the California National Forest was recently changed, by Presidential executive order, to the Mendocino National Forest. The purpose of the change in name is to avoid the confusion resulting from a National Forest having the same name as the State in which it is located.

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The Office of Education, Department of the Interior, has just issued a leaflet on "Forestry" in connection with its series of guidance leaflets on professional occupations that it is putting out. These leaflets are designed for use of students in high school and college orientation classes, guidance committees, counselors, teachers, and parents. They explain what the occupations are, opportunities, compensation, educational requirements, etc. The forestry leaflet, No. 16 in the series, was prepared by Dr. Walter J. Greenleaf, Specialist in Higher Education, from Forest Service material and questionnaires.

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G. G. Anderson, who retired from the Washington Office of the Forest Service a little over a year ago, has been elected President of the Government Employees Mutual Relief Association. He succeeds Morris Bien, who died at his home in Takoma Park, D. C., on July 28.

A SWAN SONG

Just three years ago this month the first issue of the Lake States Bulletin appeared; this issue (July) ends its short career. The Omnibus Savings Bill imposed economies in the use of mimeographing, which have been considered to apply to the field. In line with this policy, we have been instructed to reduce the size of duplicated periodicals as much as possible, delete all personal items, inspirational and similar material, and include only strictly official material necessary to the prosecution of our work. It is felt that the Bulletin, without the human interest material, will no longer serve the purpose for which it was originated, and its issuance will be discontinued until some future date when it is hoped a broader policy can be approved. - From R-9 Bulletin

CALIFORNIA PLEASE NOTE

A spruce log twenty-eight feet long and fourteen feet in diameter at the small end recently was cast adrift at South Bend, Wash., because it was too large to handle in the mills. The big log was dumped into the mill pond of the old Columbia Box and Lumber Company at South Bend in 1912, and for years has been a source of trouble. Various unsuccessful attempts were made to get the log into the mill. During the intervening years it was pushed around in the pond. Recently in order to get rid of the log it was cast adrift.

- The New York Lumber Trade Journal



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Theodore Roosevelt

Vol. XVI No. 32

Washington, D. C.

August 29, 1932

THE FOREST SERVICE AND UNEMPLOYMENT RELIEF

By Roy Headley, Washington

About five o'clock Sunday afternoon, August 14, the Secretary called T. H. MacDonald, Chief of the Bureau of Public Roads, and Acting Forester Kneipp to his office to discuss the recommended allocations to the Regions of the emergency highway and improvement appropriations. After some consideration, the Secretary approved the distribution of these two funds as previously recommended but stipulated that in addition to the five hundred thousand dollars reserved from the five million dollar improvement item, ten per cent of the four and a half million allotted to Regions should be withheld from expenditure until he could determine whether there were any emergency unemployment situations so serious as to call for application of this reserve, which would total \$950,000.

Promptly on Monday, telegrams were dispatched to the Regional Foresters advising them that the money had at last been released and that work should be started under the various letters of policy and instructions which had been issued from time to time in anticipation of the release of these funds.

Although the open field season, most suitable for effective improvement construction, is well advanced in the short season Regions, much work in the high country can still be done during the remainder of the summer and fall. Thus many thousands of men can be given a chance to earn a few dollars and win back a little hope and self-respect for lives that would otherwise tend toward despair and demoralization.

The rules and regulations approved by the Secretary contemplate rotation of crews wherever practicable and consistent with reasonable economy of construction. It is hoped that if alternate crews are worked for a full month the inevitable demoralization attending each turnover of the personnel of construction crews will be kept within bounds.

From time to time there has been much discussion about subsistence camps, at which men would work part time and receive in return plenty to eat and a comfortable place in which to live, with enough cash compensation to provide clothing, tobacco, stationery, and possibly a few dollars to send to unemployed relatives. The organization of such subsistence forest work camps supported wholly by Federal funds would raise so many questions of Federal policy and encounter so much opposition, because of its possible effect on general wage scales, that the introduction of such a program is of doubtful feasibility. Substantially the same thing can be accomplished, however, by another method. Notwithstanding the

complicated and restrictive network of laws under which we have to work, it is possible to employ two crews for a project, working each crew for four hours a day. With normal deductions for board, such a plan would provide all men in the camp with abundance of wholesome food, comfortable quarters of the type suitable for such operations, and a small net cash wage which would not be far from the amount necessary to provide tobacco, clothing, and a few dollars for friends and relatives who have been unable to secure any job. For single men or men without homes or immediate dependants this plan would provide a permanent abiding place which they would otherwise not have. A job that would give employment for four hours a day when weather is fit would for such men be far preferable to a job at eight hours a day for a month followed by another month in which the man had to choose between spending his earnings in the boarding houses of some city or returning to the jungle camps.

State financed subsistence camps on National Forests, established at State request, are viewed with favor and the five hundred thousand dollar reserve was held largely to provide supervision, tools, and construction materials for such crews. States can probably borrow from the Reconstruction Finance Corporation in order to finance such camps.

For men with nearby homes, the rotation of crews would obviously be preferable to four hour a day jobs, because such men need the largest possible net earnings in order to subsist their families, and when they cannot work they would prefer to return to their homes rather than remain in a forest work camp.

A complex of factors must be dealt with in determining the extent to which machinery is to be used in such work as development road construction. To build roads with no more elaborate machinery than picks and shovels normally costs about twice as much as to make full use of modern road building equipment. The Service must think about getting permanent values from money expended as well as the desirability of increasing the purchasing power of the unemployed by payment of direct wages. It is true that the purchase of machinery provides employment for labor all along the line from the source of raw material to the delivery of finished machines, but, because of present conditions, emphasis is heavier than ever before upon the desirability of expending the largest possible proportion of available funds in the form of direct wages to labor employed on our work.

As usual, the most satisfactory answer consists of a compromise between the pull of the various factors involved. The greatest difference between the efficiency of hand and machine work probably occurs in the initial breaking down of a steep slope so that tractor and grader outfits can work. Our trail builders or back fillers are extraordinarily efficient in this business of carving out the first narrow shelf on steep slopes. Accordingly, some trail builder outfits will be purchased to avoid the gross inefficiency of doing this part of our road jobs with no machines except pick and shovel. Every effort will be made to push the portions of road and other work which can be done only by hand or in which hand work is almost as effective as machine work. In places this will mean pushing the clearing of road rights on way much faster than finishing operations can follow with the finishing machinery now on hand. Where the available supply of tractor-grader outfits is insufficient to keep the completed road up with the initial clearing operation and its accompanying camp, trail builders will be worked night and day if necessary and practicable to keep a rough but passable way open to clearing camps, in order that supplies may be brought in by truck. Finishing operations with tractor and ripper and tractor and grader can be left until the outfits now on hand can catch up later in the year or next season.

Although the five million dollars for forest improvement work including development roads and trails is unimportant in size when compared with the much larger appropriations for other forms of public work, it will fill a particular field not readily reached by any other similar activities. Small communities and destitute farmers, or residents on or near the National Forests, can be given a chance for a little earned income when otherwise

many of them would be unable to take advantage of any of the much larger public works activities which have been provided for. The amelioration of human misery, with the attending social benefits, will be of a proportion much larger than the relative size of the forest work emergency appropriations would suggest.

REPORT OF TIMBER CONSERVATION BOARD

On August 1 the Timber Conservation Board released a summary of its findings in the form of twenty recommendations for action by Government and by industry. Those of particular interest to the Forest Service are substantially as follows:

1. The administration of Federally controlled lands should be under a single department, together with the auxiliary branches of research and other services which contribute directly to conservation of public resources or which may most efficiently be administered in connection with them.

2. The Forest Service and National Forest Reservation Commission should be asked to investigate and report, by January 15, 1933, as to the total acreage of forest land that should be acquired by the United States, and the probable cost.

3. Public timber should be sold and cut only to meet public needs, and to promote permanent forest industries, and under sustained yield management.

4. Private owners should seriously study the possibilities of sustained yield and also the available facts regarding the application of selective logging.

5. Federal appropriations for fire protection should be increased to match State and private expenditures, and the States should match the Federal allotments. Larger provision should also be made for combating insects and fungi on Federal, State, and private forests.

6. The Forest Service should release as soon and as widely as possible, its report on forest taxation; the principal timber States should adopt some system of yield or income tax in place of the present property tax on timbers; and a conference of the Governors of these States should be called by the President to discuss concerted State action.

7. Mergers of forest properties and operations, particularly in the West, are advocated. The industries should be permitted, under competent Federal supervision, to make agreements for control of production, which should be achieved as far as possible through private enterprise. But,

8. Compulsory adherence to standard grading and marking of forest products should be enforced by the Federal Government, and it is tentatively suggested that the various States should enter into interstate compacts to control timber cutting and to establish and enforce State production quotas.

9. So far as possible, without impairing long-range, fundamental research programs, the Government should concentrate its forest products research activities on the more pressing and urgency needs of the industries.

10. The President of the United States is asked to transmit the following resolution to the Forest Service:

"The United States Forest Service has made the most comprehensive investigations ever undertaken and has provided the Board with the most useful reports ever made available on the basic problems of timber supply, timber growth and timber needs. For these findings, the Board is indebted almost solely to the Forest Service. The changing complexion of the forest problem adds to the importance of maintaining in the Forest Service the public services and agencies necessary to the maintenance of the nation's forests properties, encouragement of diversified utilization of forest products

SERVICE BULLETIN

and the establishment of permanent forest industry. The Board commends the Forest Service for the enlarged interest it is manifesting in the economic problems of wood utilization and forest industry and expresses the opinion that in this direction lies the largest promise of progress toward the nation's permanent forest objectives." -

W. N. Sparhawk

LAW ENFORCEMENT - 166 PER CENT

By James E. Scott, White Mountain

From May, 1929, to May, 1932, the White Mountain record was free of "Railroad" fires. During the exceptionally dry May of this year three fires requiring Forest Service attention originated along the B & M R.R. track on the Gorham District. Less than an acre of National Forest land was burned but Ranger Hale's suppression organization incurred costs of approximately \$180, which costs were, of course, collected, through civil trespass action, from the railroad company.

Study of the big blue 929's revealed that in two of the three cases the Section Foremen although burning right of way under State Fire Permit had clearly violated the terms of the permit by leaving their fires unextinguished. Criminal action against the two section foremen was initiated. The cases were thoroughly threshed out with B & M officials from Boston headquarters. They subscribed to our expressed position that while these rights of way must annually be burned there is no wisdom in tolerating carelessness by section crews in the handling of such fires and continuing the old practice of simply settling the suppression and damage bills through civil trespass proceedings following such carelessness. We did not seek any severe punishment of the two men in these cases. Our objective was simply to get the message across to all section foremen in our territory and throughout New Hampshire that though right of way burning is a required part of their duties, they are henceforth to be held personally responsible under the criminal statutes for carelessness in handling such fires. We joined with the railroad attorneys in a recommendation to the Judge that minimum fines be levied and then suspended and that each of the men be reprimanded.

With the advice of railroad counsel the two foremen came into court at Gorham and entered pleas of guilty. Each was fined \$1 and costs of \$7.86. So far as we can yet judge, the reactions to these prosecutions are good.

It has probably been done elsewhere, but in White Mountain history at least this is the first time that criminal as well as civil action has followed railroad fires. And thus out of three railroad fires we get three successful civil cases and two successful criminal actions.

IT HAPPENED IN MICHIGAN

By Crosby A. Hoar, R. 9

The lookout on Tie Hill saw a smoke eight miles westward. It was near a logging railroad but did not look like train smoke. Perhaps a fisherman, far off the beaten track, had built a camp fire. At any rate it was in a dangerous place, with logging slash all around, and hard to reach. The lookout reported it to the Supervisor's office.

Out at the county airport was a plane, brought in a few days before to help check incendiaryism. The Supervisor called the airport and told the pilot to warm up his motor. Then he jumped in his car and made fast time to the airport.

In eight minutes he was over the fire: three fires, it turned out, set by some incendiary. They had not yet burned together, but with the slash all around there was no time to lose. It was impossible to land in that cut-over tangle. The nearest help was the road crew, eight miles north. The Supervisor shouted to the pilot and they turned that way.

Then forethought came into play. The Supervisor took a Forest map and marked the position of the fire with a cross. With string, a cloth flag, and a nut for a weight, he prepared a message to drop to the road crew. It read "Fire at point marked X on map. Get your crew in the truck and we will guide you to it." The message was successfully dropped near the road foreman.

On went the plane to the Midway Tower. Another message, aimed so well that it fell between the legs of the tower, asked the lookout to call the office and start the fire truck with ten men to reinforce the road crew.

Back again to the road crew, who in their truck, had started for the fire, still invisible to them. There were several forks in the road. At each fork the plane circled until the truck arrived, then headed down the right road. At last the truck passed all the forks. It would reach the fire if it could keep going over the rough old logging trail that was the only way in. It disappeared in the timber and emerged finally, near the fire. Forty-two minutes had elapsed since discovery by the lookout.

Then another note was dropped, saying "If you need help, wave your hat." From the circling plane the Supervisor saw the road foreman pick up the note, look at the fire, and instead of waving his hat, attack the fire with redoubled vigor. The plane turned back to the airport.

Thanks to the plane and the use made of it the three sets were held to one acre. The crew which took the fire truck from town, arriving an hour later, failed to find the fire on their first trial, and had to be redirected by the Supervisor, thus giving further proof of the value of the birds-eye view.

FROM AMERICAN MANAGEMENT ASSOCIATION BULLETIN 115.

"GENERAL MANAGEMENT THEORIES".

The success of present day organization depends to a great extent on its collective openmindedness to new ideas, its sensitiveness to trends, its ability to change its mental attitude to suit new conditions, its facility in working together and achieving results quickly on new problems, and its elasticity in effectively contracting or expanding its operations as new conditions may require. All of these elements determine mental and physical flexibility.

It is a peculiarity of human nature to defend to the last stand an opinion once expressed. Executives are by no means immune from this failing. It is necessary, therefore, to discourage mere opinions and to develop conclusions based on all available facts. If discussion of a problem is once allowed to reach the stage where various ones have committed themselves to premature opinions, it usually becomes a little difficult to arrive at sound recommendations or even impartial consideration of the other fellow's point of view. This is especially so if these opinions arise out of past experience which may have been sound at the time but no longer applies to new conditions.

A FRIENDLY ACT

President Hoover, who has his Sunday papers delivered by airplane at Camp Rapidan has nothing on the lookout man on Frazier Mountain, Santa Barbara Forest, who gets his Los Angeles or San Francisco papers daily via air. Jess Hart, pilot of the Varney Speed Line between the

Bay city and southern California, politely flies over the lookout, drops the morning paper, banks his low-winged flash of speed and levels off to continue on his journey. Delivery started July 7 and has resulted in friendly interchange of letters between lookout and pilot. - R-5 Bulletin

YE EDITOR DISCOVERS

A comparison of fire records between 1931 and 1932 still gives cause for jubilation to all concerned. The area burned to August 10, 1932, is 67,000 acres as against 336,000 to the same date in 1931. Expenditures for emergency guards are \$12,000 as against \$81,000. Emergency guards on duty on August 10, 1932, were 164 as against 642 on the same date in 1931. One comparison which we hope reflects increased speed and certainty of action, as well as a more favorable season, has to do with extra period fires. Up to August 10, 1932, only 59 fires of all classes are recorded as extra period. In 1931 to the same date there had been 201 extra period fires exclusive of extra period Class A fires. Man-caused fires are 2,308 as against 3,175. This is only a 27 per cent drop while the other decreases are mostly 75 per cent or better.

For once, the fire control forces are getting a break in places at least. In Region 1, for example, a light rain occurred just as the number and spreading characteristics of fires were assuming alarming proportions. A respite was therefore given to the organization over a lot of this Region. Much the same thing has occurred in two or three other Regions.

Apparently it must be accepted as an axiom of forest protection that somewhere in the United States every year there is an extreme emergency condition. Florida and the Southern States have already had their unprecedented drought and relatively heavy fire losses. Those who have watched the weather map realize that for much of California late spring and light summer rains have failed to occur - as usual. California's record of damage and expenditures for 1932 is still amazingly good, but this is not to be ascribed in any large part to precipitation in late spring, because in most places it did not occur. The heavier rainfall in the winter and early spring put some moisture back in the parched ground and it appears that the factors of wind and humidity have been more favorable during mid-summer. Now is the time for experts in reading the precipitation cycles which are recorded in tree growth rings to win immortal fame by forecasting a real swing of the weather back toward normal precipitation levels - provided the forecast comes true.

Educational trucks are being used by the following States and Forest Service Regions:

	<u>No. of Trucks</u>		<u>No. of Trucks</u>
Region 3	1	South Carolina	3
Region 5	1	Virginia	1
Region 6	1	West Virginia	1
Region 7	2	Kentucky	1
Pennsylvania	1	Oklahoma	1
Florida	2	Texas	1
North Carolina	1	Mississippi	1

Many Forest Service motion pictures and exhibits are used on these trucks.

Region 1 does not have a specially equipped truck but has two Homelite generators which can be placed in any conveyance for use in their educational work. Alabama and Louisiana do not have regular forestry educational trucks but they each have a portable moving picture machine. Louisiana also has a forestry talking picture. Indiana and Illinois do not have educational trucks but Indiana has several hundred slides and four Fish and Game, Parks and Forestry films, and Illinois has five "Scene-in-Action" machines.

More than 155,000 acres were planted to forest trees in the United States last year, according to a summary of State reports recently submitted to the Forest Service. In 1930, 138,970 acres were planted.

Over 26,000 acres of new planting was done on the National Forests during the year. Planting in State Forests totaled 58,989 acres, and forest plantings on other State lands 3,321 acres. Reported planting by individuals amounted to 29,624 acres for the year. The number of individuals making forest plantings was 16,940, all but 1,869 of them being farmers.

Michigan, as in 1930, led all States with a total acreage of 47,264, planted by all agencies. New York was second, with 38,664 acres planted, nearly half of this being State lands. Pennsylvania was third, with 17,825 acres, 13,700 acres of which were private land owned by individuals and industrial organizations. Wisconsin plantings amounted to 6,734 acres. Massachusetts planted 4,093 acres. Ohio, Nebraska, Washington, Montana, Idaho, Indiana, Louisiana, and Connecticut planted 2,000 to 3,500 acres each. The 1931 plantings brought the total acreage of artificial forested lands, as far back as Forest Service records go, up to 1,953,394.

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As the complications and ramifications arising from the application of the economy act to short term employees were recognized in Washington, the men working with the painful subject were afraid to stop to think about the confusion, the extra work, and the feelings of short term employees who, seemingly, were having inconsistent and inexplicable chunks knocked out of their pay checks.

One Regional Forester writes: "This business (application of economy act to short term employees) has about got our goats."

Wiring in regard to one new inconsistency which had developed in the required application of the act to short term men, one Fiscal Agent said: "I am stumped." If he had had time to be facetious, Mr. Zimmerli might have wired back: "So am I." Instead, all hands took a fresh start in a new effort to find the best way out of the tangle.

Amazing are the patience and morale which short term employees, as well as the permanent organization, seem to be able to maintain in the face of double cuts, confusion, and inconsistencies in the way the act falls on different classes of employees. The fire record of the National Forests to August 10 does not suggest that there is any lying down on the job.

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During the fiscal year ending June 30, 1932, the public borrowed from the Forest Service almost 12,000 lantern slides, which were shown to approximately 89,000 persons.

FROM AN INSPECTOR'S REPORT

Particularly obvious all along our route through the Medicine Bow and Roosevelt were the draws and stream courses which were alive with prospectors and placer miners - not merely camping there but down in the gravel and water strenuously laboring. We have read of this for over a year, but seeing these men in action makes a real impression; not only in showing the attitude of the unemployed and in bringing home, as do your B.E.F. camps, a few realities that might otherwise not sink in very deep, but also, from a selfish Service point of view, it is a fine demonstration of one way in which the National Forests are helping in a national emergency. Those are not merely high sounding words. The Forests are serving as a refuge and a possible source of rehabilitation for increasing numbers of those who have been caught short and are fighting to uphold their self-respect. No charity soup lines for them, apparently, if there is a bare chance to make a go of it otherwise. On our part we are making no entry charges, no noticeable restrictions on their actions or movements; are giving advice and encouragement through the local rangers and other Forest officers rather than merely tolerat-

ing or hindering and possibly discouraging in ways that are available; and are providing a place in which to live, to catch fish and possibly to pan out enough to more than break even. Such an attitude on the part of our men is bound to add to our reputation for common sense, and practical helpfulness.

For the same reason the help which the Region is giving local municipalities with their "subsistence camps" will be rated high in any reckoning that may ever be made. As I recall it, there are three or four of these camps now operating out of Denver. Administrative timber use, although often in scattered and individual cases, is a further help and no doubt in the aggregate is very much worth while.

ACCOMPLISHMENT

REGIONAL FORESTER:

The Hotel El Portal burned down in a stiff breeze on the afternoon of July 8.

Anybody knowing the Merced River Canyon and how it starts climbing, right now, from the back of the Hotel up into the National Forest and National Park on Crane Creek will appreciate the chances for a very large fire.

This spring, the Stanislaus Forest was allotted the money that would otherwise have been spent for a guard meeting, which was not essential this year due to the fact that we had only two new men, for the purpose of trying an experiment of burning fire lines from the top of the Merced River Canyon down to the River.

Five Forest officers, and ten hired fire fighters, beginning June 20, burned four such fire lines at a total cost of \$201.00 in three days actual burning. The one that we knew would do the most good and would be the hardest to burn without the fire getting away from us was the strip right back of El Portal. This strip was in territory that had not had a fire in it for years, and there was lots of old dry material to make it rather a hot fire. The strip, however, was successfully burned, and it was due to this fact, that we had this El Portal line - that it only took five or six men an hour or two to put the fire out, which would have been a very disastrous one resulting from the burning hotel.

J. R. HALL,

Forest Supervisor. (Stanislaus)

AUGUST 15 ISSUE OF SERVICE BULLETIN DELAYED

Through no fault of Ye Editor, the August 15 issue of the Bulletin is still not ready for mailing as this issue goes to press. The Department Section of Illustrations has been moving its office for the past week or so and has been handicapped in getting out its work. We are running a picture of the new Lumbermen's Monument on the Huron National Forest in the August 15 issue. This requires the making of a rotaprint and explains the delay.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

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Theodore Roosevelt

Vol. XVI, No. 33

Washington, D. C.

September 12, 1932

HAS NATIONAL FOREST RANGE USE BEEN STABILIZED?

By C. E. Rachford, Washington

We are now approaching the end of the first period for which ten-year permits were issued. At the expiration of this period Forest officers will be called upon to answer many questions as to the degree to which range use has been stabilized and recommend such changes as in their opinion would be in the best public interest. In approaching this question, Supervisor Agee of the Bighorn National Forest has submitted a most interesting analysis which shows that 35 of the 332 cattlemen granted permits in 1906, or their direct heirs, are grazing permittees on the Bighorn Forest at the present time. Three of the 44 original sheep permittees, or their direct heirs, are users of the Bighorn Forest at the present time. Of those granted permits in 1911, 54 cattlemen and 7 sheepmen, or their direct heirs, are still using the Forest. The average period of continuous use (including authorized carry-overs) during the period 1906 to 1931 has been about five years per permittee. Some permittees have dropped out or gone out of business for a few years and later returned as grazing applicants. Most of the turnover, however, represents stockmen going out of business or dropping out permanently as Forest users. The turnover includes sales of ranches or livestock with waiver of grazing preference. The following table gives the turnover by shorter periods:

"Percentage of Stockmen on Bighorn Forest who Went out of Business or Dropped out as Grazing Permittees

	<u>1910 to 1913</u>	<u>1914 to 1920</u>	<u>1921 to 1924</u>	<u>1925 to 1931</u>
Per cent of total permits	23	20	20	10

"The analysis shows that the highest average yearly turnover was during the early period of grazing, but that the average annual turnover during the two succeeding periods was 20 per cent, which appears rather high for the best results in range management and range and watershed protection. It makes a rather high percentage of permittees unfamiliar with our grazing regulations and methods of management, and a rather high percentage of stock unfamiliar with the range each year.

"The average turnover for the 1925-31 period has been slightly increased by the past two and a half years of severe industrial depression; but even making allowance for that, the average appears high, although much lower than during previous periods."

Mr. Agee believes that the increased stability during the period 1925 to 1931, and the

decreased turnover in permittees, might be attributed to the 10-year permit, the establishment of zones of dependency, a more conservative policy in maintaining established carrying capacities in opposition to heavy demands when the livestock industry was prosperous, limiting opportunities to new applicants and opportunities for established permittees to expand beyond their ranch productivity and financial capacity.

While it is difficult to determine all of the causes entering into the heavy turnover in permittees on the Bighorn, an analysis of the 1921-24 period shows that "the heaviest turnover was among the more recent permittees who were either not well equipped for or well established in the livestock business. Of the 284 permittees who went out of business during the period 1921-24, 197 or 70 per cent had been approved as new applicants since 1917; 154 or 54 per cent since 1918; 105 or 40 per cent since 1919; and 69 or 25 per cent in 1920, the year preceding the depression. Of the total number going out of business during the period, only 30 per cent antedated 1917 as Forest permittees. While some progress has been made toward stabilization of the local livestock industry and stabilization of the use of Forest ranges, this problem in the use of the Forests merits further consideration because of its bearing on progress in range management. It indicates the need of further thought on the part of the Forest organization in fitting in the use of our ranges and the type of service we have to offer with the economic needs of the livestock industry."

It will be observed that the Bighorn analysis deals with individuals. It seems probable that some very interesting facts might be derived from an analysis of the turnover in operation or outfits; that is, whether there has been a comparable turnover in dependent ranch properties and stock. Perhaps other Forests will make a study of the question of range stability, in a manner similar to that made by Supervisor Agee.

"PAYMENTS SHALL BE MADE IN ADVANCE"

By E. E. Carter, Washington

At the end of F. Y. 1930, the Forest Service had, during its life, taken in more than \$1,250,000 in timber sales and timber settlement receipts in excess of the value of timber reported cut. During the next two years, purchasers drew on their credits to the extent of \$620,000, leaving on hand an excess of deposits over value of timber delivered of about \$700,000, according to the records beginning with F. Y. 1907. Each period of business depression has been marked by the delivery of timber to a greater value than the current receipts (F.Y.'s 1908-09, 1915, 1919, 1921, 1924, 1926-27, and 1931-32). Each period of normally good business conditions has been accompanied by an excess of deposits over value of timber delivered (F.Y.'s 1907, 1910-14, 1916-18, 1920, 1922-23, 1925, 1928-30). As the timber business of the Forest Service increased, so did the total "working balances" to the credit of all our purchasers, but with the hard times of 1931 and 1932, everyone who could do so used up his credits, closely or completely.

Not all of the \$700,000 excess of receipts over value cut stands today to the credit of purchasers. There have been balances on deposit which have been retained to cover damages in breached or abandoned contracts, as in the "Hammer Area" case of the Saginaw and Manistee Lumber Company, Tusayan Forest, in R-3, a recent case on the Choctawhatchee Forest in R-7, and an R-5 case in which we retained \$10,000 to cover damages. Stipulated percentages of deposits with bids have been retained as liquidated damages when bidders failed to execute contracts or to meet the conditions of award in other ways. Region 2 retained \$15,000 of such deposits when its awards of pulp timber were not followed by satisfactory action, and another illustration was furnished by the withdrawal of the bidder for the Fandango Unit on the Modoc

Forest, R-5, after award following the first advertisement. Every Region has small sales which have been closed with balances standing to the credit of individual purchasers in amounts so tiny that refunds were not worth bothering about, but the total might be surprisingly large. No one knows just what all these closed accounts amount to, but it is certainly enough to reduce the nominal total of advance payments, \$700,000, very materially. Also, the record is foggy on the question whether the values of timber cut in the early years include the value of material not convertible into board feet, but it is certain that the "sales receipts" did include the money taken in for those products. Turpentine sales were segregated fairly early, but the "Products Sales" classification for Christmas trees, bark, etc., is a relatively recent development.

Again, some of this balance is represented by "deposits with bids" against which little or no timber has been delivered. The Alaskan pulp sales deposits are illustrations, and the Schaffer Bros. case on the Olympic in R-6, and the Cady Lumber Corporation purchase of the Rock Top Unit on the Coconino in R-3 are others. Altogether, the advance payments in active sales must total less than at any time in the last 20 or 25 years. We have very largely liquidated the accumulated credits on hand two years ago, except as deposits with bids are being held pending the beginning of logging or the abandonment of the undertakings.

TO ILLUSTRATE FOREST MANAGEMENT

By Joseph C. Kircher, R. 7

The making of a systematic photographic record of the Osceola National Forest in Florida has recently been initiated. The idea was worked out by Dr. Austin Cary and Extension Forester W. R. Mattoon, both of the Branch of Public Relations, and Supervisor Hadley of the Forest. While the idea of "camera points" is not new, it is not believed that it has so far been used to cover a whole Forest to illustrate the management which is being inaugurated.

The aim is to record forest types and forest conditions, especially those that are changing or likely to change in the near future - for example, turpentine stands nearly worked out which will soon be logged and replaced by young growth and lands which by reason of protection from fire are beginning to restock well. Forest operations, including the marking, cutting and hauling of logs, crossties and retort wood, and the working of longleaf and slash pine for turpentine - this group was photographed, although it constituted a separate division from the permanent photo station pictures.

The photographs will be mounted and kept for continuous reference. The permanent photographic station views will be mounted each on a sheet of block photo paper, size 18x21 inches, and held by a set of standard atlas covers. This will afford ample space for later retakes. A full description of the location and character of the photo station and direction of the view will appear on each sheet.

All the photographs, including those of the permanent stations and the miscellaneous others including mostly forest operations and products will be each mounted on a standard photo mount card with full description. In making visits to the permanent stations from time to time, these mounted cards can be used, and the atlas album thus kept in the office.

Altogether 34 photographs were taken from 21 stations, two of which were panoramas consisting of two photographs each. All stations were permanently worked so that changes may be observed as time passes and future pictures may be taken of the same views. The plan calls for getting a full set of retakes at intervals of five years in addition to any others that may be desirable and also that new stations be added as points of interest develop in the Forest.

This is the beginning of a systematic effort to supplement the written record of the

progress of forest management on the Osceola by photographs. It is believed that the photo record will become exceedingly valuable as time goes on, since it will illustrate far better than anything else the changes which are taking place on a forest under good management. The series of pictures will be especially valuable for the Osceola, the primary purpose of which is to demonstrate proper forest management of longleaf and slash pine forests.

AUTOGIROS

This season, for the first time, one autogiro is under seasonal contract for flying in connection with forest protection. This machine flies from a base at Seattle. Because of its capacity to fly slow when desired and to land on and take off from much shorter landing fields than conventional planes, this type of aircraft has large possibilities for eventual use in forest protection. There are, of course, difficulties and uncertainties. For transportation of heavier weights of supplies or men the autogiro, at least as yet, has not been developed to the capacity of conventional planes. The peculiar windmill construction is also said to have some effect on landing behavior of the plane, which may require unusual experience and skill on the part of the pilot. Nevertheless, it is entirely possible that within five years the autogiro type of plane will largely or wholly supersede earlier types, particularly where clearing and use of landing fields in mountainous areas are essential to enlarged use of aircraft in forest protection.

Assistant Supervisor Murphy of the Santa Barbara gave, in the California Ranger for July 8, a very interesting account of a trip he and Supervisor Nash-Boulden made in one of these autogiros. We enjoyed it so much that we are quoting it below.

"Last Sunday Supervisor Nash-Boulden and I had the opportunity of meeting Mr. Haynes who is the Pacific Coast representative of the Autogiro Manufacturers and who has already been in contact with Mr. Brundage of Region Six. In order to demonstrate to us the adaptability of the 'Giro' to our type of work Mr. Haynes had us take short trial trips. Supervisor Nash-Boulden's trip consisted of a more or less sedate journey over the front canyons of the Forest in the vicinity of Carpinteria, while my trip was composed of a close inspection of Hobo Camps along the railroad and of the Carpinteria bathing beaches interspersed with a series of stomach raising Immelmans, side slips, tail slips, nose dives, and what have you, the whole procedure representing something akin to a ride on a glorified amusement park chute-the-chutes and dignified by being called a 'Press Ride.' The pilot informed me that they reserve the type of ride given to me for newspaper men principally, hence the term 'Press Ride' although after taking such a ride I am thoroughly convinced that aviators must hold something against newspaper men. At any rate, the object appeared to be to demonstrate the man killing possibilities (through fright) of the 'Giro' without actually causing the demise of the victim of the demonstration.

"Seriously, however, both Supervisor Nash-Boulden and I feel that the 'Giro' holds considerable possibilities for our work and that it is far superior to the ordinary type of plane for patrol and scouting work. We learned that it is possible to cut the cruising speed of the small 'Giro' to 25 miles per hour with a range in speed above that to 95 miles per hour. The 'Giro' demonstrated before us was only about $\frac{1}{2}$ the size of the ship tested by Mr. Brundage, the motor being a 160 H.P. Kinner and the capacity of the ship being 1 passenger and a small amount of baggage. The cruising range of this small 'Giro' is about $2\frac{1}{2}$ hours at an average speed of around 90 miles per hour. The rate of climb of this machine is about 1000 feet per minute.

"Due to the fact that this ship can cut its speed down to 25 miles per hour, it is possible for it to drop into deep canyons and to hover around over any given spot as long as you desire and at a distance of only 200 or 300 feet above the ground. I noticed in passing over camps along the railroad that a person had ample time to observe most of the details connected

with the camp and in fact it would seem as if there was almost time to shout down to the camper and ask him to show his fire permit. It would seem as though the 'Giro' would be an excellent type of plane for patrol work, especially in an incendiary district or for spotting smokes after a lightning storm. For use in fire scouting the 'Giro' appears to be preeminently suitable, as it is possible to get down close to the line as well as to drop into canyons: also in the event of a forced landing the danger of serious injury or death is minimized for, as the pilot expressed it, 'You would be able to walk away' from the scene of the crash due to the fact that the speed of the craft when it hit could be reduced to at least 20 or 25 miles per hour. As brought out by Mr. Brundage, this type of plane can use very small fields for landing purposes and in fact when landing it would seem almost as though the 'Giro' could be put down without trouble on a patch of level ground not over 150 feet on a side.

The small wing spread of the 'Giro' provides better visibility than is possible with the ordinary type of plane. Still another factor in favor of the 'Giro' is its apparent fool-proofness as brought out by the maneuvers through which the pilot put the craft without getting into difficulties such as would have befallen the ordinary type of plane. We were informed that added improvements are being developed at the factory and that we may see before long a small 'Giro' with only two rotors which can be jack-knifed back over the fuselage so that the craft might almost be kept in a double garage. If after reading this account of the baby 'Giro,' any opulent Forest officer feels that he would like to turn in his horse, saddle, and Model A Ford for a 'Giro,' he could most probably make a deal if he threw in the above mentioned traditional means of travel for their trade value and about \$7000 to boot.

MAINTENANCE POLICIES

By Roy Headley, Washington

For various reasons it has been the tendency in making allotments for improvement work to approve maintenance estimates freely unless the estimates look wholly out of reason to the approving officer. Critical examination and comparison of maintenance costs are usually not as easy as similar comparisons and control of construction costs.

This situation has led to various forms of unevenness in levels of maintenance and in some instances has resulted in "bootlegging" - securing allotments for maintenance in order to use some of such funds for betterment or construction work which would not be approved if presented as a request for betterment or construction of such projects.

Out of the confusion has come various unfortunate things including statistical records showing that cost of roads and trails is higher than it actually is.

What to do about maintenance allotments and expenditures in times when appropriations are withheld but new construction such as fire guard stations and lookout structures is needed is an acute question just now.

A policy pursued by the Pennsylvania Railroad is of interest in this connection. Through unofficial channels it is reliably reported that this corporation has cut its maintenance costs by possibly 75 per cent and although this policy has now been in effect for more than a year, train service is still being maintained effectively. It is understood that the results have been an eye opener to the company as to how little maintenance they can get along with. Of course, we would doubtless say that in prosperous times, maintenance by this corporation was wild extravagance compared to any maintenance the Forest Service is able to do.

RAISING FAWNS

A very interesting report was recently made by Supervisor Mann of the Kaibab on raising and shipping deer fawns. During the past eight years, 851 Kaibab fawns have been shipped to 34 different States and to Canada. Beginning in 1925, raising and shipping fawns was adopted to relieve the deer congestion on the ranges of the Kaibab National Forest and at the same time put the surplus to the highest use. Permits for catching and rearing fawns are issued by the Forest Supervisor to residents of the local communities. These permittees raise the fawns under a cooperative agreement and in early October, turn them over at a stipulated price to the Supervisor, who makes disposition of them on orders from all parts of the country that have accumulated during the year.

When fawn raising was first started in 1925, little was known of the habits of these animals or of the methods necessary for success of the enterprise. The fawns in that region are born between June 15 and July 15 and are born on the ridges. On windy days they are found mostly on the lee side of the ridges. The little fellows are provided by nature with a protective coloring that blends well with the surroundings and makes them very difficult to see. During the proper season the catchers search through the woods looking closely along down logs and in brushy thickets and become very expert in locating the young fawns. When caught, the young fawns must be handled very carefully, as a very slight injury is likely to prove fatal. They are taken to their farm home at Fredonia, Arizona, or Kanab, Utah and nursed until fall on cow's milk and other suitable feeds. When young they are delicate, subject to stomach disorders unless carefully fed and very susceptible to insanitary conditions. Experience has developed the practice of raising only a few, 6 to 9, at a "fawn farm." Mr. Mann says that "the secret of raising fawns is plenty of room, variety of food and sanitation." Any change in food must be gradual.

Of the fawns shipped by the Kaibab, 81 were shipped to points east of the Mississippi River and 663 to points west of the Mississippi. It has been the impression that these mule deer would not do well east of the River. The past winter, reports were received from 84 of the 114 applicants to whom fawns were shipped. On the basis of these reports, Mr. Mann states: "Of the total number reported on we have had a total yearly loss of 15.74 per cent east of the Mississippi and 17.81 per cent loss west of the Mississippi, or 2.07 per cent greater loss west of the Mississippi." The figures are based on the period 1925 to 1931, inclusive. The average annual loss for all fawns shipped, Mr. Mann points out, has been 16.77 per cent.

The report concludes with the statement: "The above statements show quite heavy losses. But when it is considered that these fawns went to 34 separate States, that there were many unsuitable pens, and that nearly all of the recipients had never taken care of deer before, it is a pretty good record."--E.W. in R-4 Bulletin.

YE EDITOR DISCOVERS

When Max Schmeling retires from the prize fighting ring he is going to be a forester, according to Walter Trumbull, sports writer, who recently interviewed the ex-world's champion.

Trumbull says in part as follows:

"When Max Schmeling beats Mickey Walker, Young Stribling, and Jack Sharkey, as he firmly believes he will, and when he polishes off a few of the contenders who will come after them and gets ready to retire, he has his mind all made up regarding what he is going to do. He says he is going to be a forester.

"Schmeling's idea of being a forester is to purchase some 10,000 acres and perhaps rent some more and establish a sort of domain, although he refers to it as an estate.

"Much of it is to be wooded land where deer, wild boar, quail and ducks will be urged to foregather and let Max get a shot at them in season. Schmeling has the Teutonic regard for law and order and there will be no out-of-season shooting on his place.

"Then," he says, "there will be the trees. That is sure business in Germany. The land is not all the same height - some is lower and some is higher - and you cut the trees off one place at a time. Next year you cut off another place. But when you cut, you must plant new little trees. For that you must study. You must know all about trees. And where there are no trees, I shall have men farming. I must study about that, too. But that is what I shall do when I have finished fighting."

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The Forester has recently approved the establishment of a 10,000 acre tract of typical Douglas fir timberland within the Columbia National Forest as an experimental forest. This area, to be known as the "Wind River Experimental Forest," is located in the Wind River watershed ten miles north of Carson, Washington. It includes 4500 acres of typical old growth, virgin timber, 3500 acres of young growth now 90 years old, and 2,000 acres of old burn in varying degrees of fire kill and restocking, part of which has been reforested by planting. Of the old growth area 1200 acres will be set aside as a natural area to be kept in its virgin state for educational and scientific purposes. Studies, many of which are already under way, will cover economic selective logging and other methods of lumbering, slash disposal, fire prevention and control technic, natural and artificial reforestation, growth and yield studies, thinnings, the control of insects and disease, and the interrelation of plant and animal life in the forest.

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Mrs. Edith K. Roosevelt, widow of the late President Roosevelt, very graciously acknowledged as follows the receipt of maps of the newly-named Roosevelt National Forest, which the Acting Forester had sent her:

"Many thanks for so kindly forwarding the maps. They are of very great interest to my family and to me."

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American weather, particularly since revolutionary forces seem to have so disturbed it, is always taking the joy out of life at some point in the United States. At the end of a three months period when the accumulated shortage of precipitation in the District of Columbia has mounted to six inches and vegetation and crops are suffering severely - to say nothing of a temperature of 100 degrees as the Editors struggle to make up this issue of the Bulletin - we have the pleasure of reading about August snows in the Northwest, breaking records of many years standing, and, according to newspaper reports, reaching a depth of 1½ feet in one valley in Utah.

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The Forest Service ranks first among the Bureaus in Washington in percentage of membership in the Department of Agriculture branch, Local No. 2, of the National Federation of Federal employees, as of June 30, 1932. Out of a total of 227 employees, 181, or 79 per cent, are members. The Biological Survey is second, with 89 members out of 116, or 77 per cent.

The Weather Bureau is third, with 158 members out of 251, or 63 per cent. The Bureau of Chemistry and Soils has the largest membership, 190, out of a total of 482.

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Seven thousand miles of string are being used by the five hundred men who are now working to control the ravages of the red blister rust in white pine timber on the Clearwater National Forest, Idaho. The total weight of the string, which is used as guides so that the men will not overlook any territory in which the wild currant and gooseberry bushes may be growing, is two and three-quarter tons.

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From Supervisor Pagter, Mount Baker National Forest, comes report of a Seattle man who left his camp fire burning to cook a pot of beans while he went fishing. The justice fined him \$10 and costs.

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WHEELER'S LECTURES PRAISED BY EL PASO CHAMBER OF COMMERCE

Maj. R. Y. Stuart, Chief Forester,
U. S. Forest Service,
Washington, D. C.

Dear Sir:

The two lectures delivered in this city on August 18 by Mr. H. N. Wheeler, Chief Lecturer of the U. S. Forest Service, were deeply appreciated by the officers and members of this organization. His illustrated lecture, "The Lure of the Forest," given before a joint meeting of our civic luncheon clubs, is one of the best that it has been our privilege to hear. There isn't a dry spot in it. It has been a long time since any speaker has commanded the attention of an El Paso audience that Mr. Wheeler received.

His talk given in the evening over Radio Station KTSM, through the courtesy of the Tri-State Broadcasting Company, was equally as interesting and well received. The message he carries and which he presents in a vivid and most interesting way, is one that every citizen of this country should hear.

We are fortunate, indeed, to have so able a man as Mr. Wheeler to represent our Forest Service. The work that he does is of great value.

Sincerely yours,

(Signed) E. H. SIMONS

Executive Vice President



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREAFTER

Theodore Roosevelt

Vol. XVI, No. 34

Washington, D. C.

September 26, 1932

THE FALL AND RISE OF THE MOQUAH

By S. D. Anderson, R. 9

Fifty years ago the Moquah Purchase Unit, in Northern Wisconsin, was covered with a magnificent Norway and white pine forest, its trees tall, straight, and closely ranked. Here and there were grassy parks breaking the extent of virgin timber. Old timers say these parks resulted from repeated Indian fires which were set by the red-men to furnish good grazing for their ponies. Moquah, the Indians say, is Chippewa for bear.

Then came the lumbermen, who erected sawmills, built railroads, and tote roads, and the rush was on to reap the harvest that nature had been centuries in producing. This was during the famous pine logging days of Michigan and Wisconsin, replete with their tales of river driving and hardened lumberjacks. I have been told that during the hey day of logging there were more than twenty mills running at full capacity in this locality. Because logging was easy and the timber of extra good quality and the waters of Lake Superior provided cheap transportation, cutting was rapid. The last of the big operations closed down about twenty-five years ago and the pine forest became only a memory.

Most of the area was bought by land companies who had visions of selling it to settlers, who would till the soil and produce flourishing farming communities. These visions were only mirages, like most of the visions of agriculture in the cut-over sand lands of the Lake States. Many an abandoned farm on the Moquah stands as a decaying monument to blasted hopes. The land was swept by severe fires year after year, and in time little was left but blackened stumps and scrub oak, with an occasional patch of jack pine that had escaped in some miraculous manner. This denuded country of hills and kettle holes was aptly known as the "sand barrens," and its ownership was rapidly passing to the County through non-payment of taxes.

This is the picture of the Moquah in 1928. In that year, other and more far-sighted men had visions of a very different future for this non-productive no-man's land. They were a group of Bayfield County men who thought they could see another forest rising in the future out of the oak brush of the barrens. An appeal to the Forest Service to select this area as one of the new Purchase Units was heard, and, by approval of the National Forest Reservation Commission, the Moquah and its two sister Units in Wisconsin were born. The Moquah's rearing began the following spring when a Supervisor's office was established at Park Falls and a Ranger was stationed at Washburn. Acquisition was the principal activity during the first year, and by the following spring Uncle Sam had title to some 30,000 acres. The first plant-

ing was done and the conversion of these brush lands to a productive forest was started at once. On telegraphic information that title to the land was accepted, tractors and plows began furrowing for planting.

The planting program calls for eight to ten thousand acres a year, as soon as the three nurseries in this Region are producing at capacity. Of the total of 110,400 acres in the Unit, at least 95,000 will require planting. Thus, in about 15 years, and with proper protection from fire, the entire Forest should be a productive property.

A study of probable growth and expectation values of the plantations was recently made as a part of the transportation plan for the Moquah, and the results should be of interest to those who may have wondered just what the future holds for Forests on which planting is one of the biggest jobs.

The amount of natural young tree growth is almost negligible; 5,500 acres, most of which is jack pine with a small acreage of Norway. A calculation of yield shows a future average annual net return from this source alone of \$6,300.

The plan calls for planting by species as follows: Norway pine 60,000 acres; white pine and white spruce, 15,000 acres each; and jack pine, 5,000 acres. White pine and Norway will be managed, undoubtedly, on a 90-year sawlog rotation. At this age, trees averaging about 16 inches d.b.h. should be produced. Jack pine and spruce will be grown for bolt material, which, in the case of the pine, will produce wood pulp, excelsior, and allied products; the spruce will be utilized for pulp only. Rotations for these two species will be about 40 and 60 years, respectively, at which time the stand will produce trees averaging at least 7 inches d.b.h. Although thinnings before maturity for all species will be practical, no doubt, and will actually be made, they are not considered here. It is estimated that at maturity white pine will yield 25 M ft. b.m. per acre, worth \$20 per M.; Norway pine 23 M, at the same value; white spruce 30 cords at \$5; and jack pine 27 cords at \$3. Acquisition land values of \$1.50 and \$1.75 per acre were used, and \$4 as the average per acre cost of planting (including cost of stock). These values were compounded at 4 per cent for the number of years in the respective rotations. Thus, the values determined are net values to the Government for one rotation. Net totals estimated for the Moquah at the several maturity ages are 1,755,000 M ft. b.m. of Norway and white pine, giving a return of \$20,760,000; and 585,000 cords of jack pine and white spruce, worth \$1,685,000. These figures should be reassuring to any who may have faith that planting would, in the long run, be a desirable and lucrative business for Uncle Sam.

The main purpose in making these calculations was to determine the potential value of the Moquah as a timber-producing property and to use this figure as a logical substitute for the value of existing timber, which is largely lacking on this and similar Units in Region 9. This expectation value was actually used for checking or justifying costs of a planned protection system. I will take this opportunity to checkmate any doubt there may be in the mind of the reader, and say that the protection plan had been worked out before this method of checking was developed.

Average annual net returns from the plantations was determined as \$266,700, which is \$1542 per square mile for the Unit. Going one step further, the sum of money was determined that could be spent yearly, compounded at 4 per cent interest, to consume the net value of the timber at maturity; namely, \$22,355,000. This was found to be \$32,200, or \$185 per square mile, and may be taken as the maximum allowable annual expenditure that would be justified to produce and protect the timber values. This figure compares favorably with annual costs of the planned system, as determined in the Transportation Plan report for the Moquah in which were included costs of prevention, presuppression, and maintenance, besides depreciation of all existing and proposed protection improvements, including roads. Administration costs were also included and the grand total estimated annual cost was \$11,900 or \$62 per square mile.

This is only 37 per cent of the allowable expenditure, based on the expectation value of existing and proposed plantations.

Mr. Kittredge's Forest Service bulletin "Forest Planting in the Lake States" was used as a basis for volumes and values and is believed to be conservative.

SWEDEN READS US A LESSON

(An Editorial from the Canadian Forest and Outdoors Magazine)

Canada enjoys a rather unique position with regard to her forests and forest lands in that the people, as a whole, own about nine out of every ten acres of forest land, i.e. land forested or land capable of producing forest crops. All that we need then is applied constructive legislation and an informed and cooperative public to make our forest land holdings the most productive in forest crops in the world. Particularly is this true of our conifers.

For years past we have consistently mined our forest crops and left the future to take care of itself. This policy of squandering nature's gift is not a new one. All the older countries practiced the same thing until conditions were such that remedial measures had to be undertaken or forest industries pass to other countries. But this practice besides being costly proved embarrassing in the Great War when adequate supplies of wood were difficult to obtain. Millions of dollars are now being paid out by European and other countries in recuperative measures. Land acquirement and plantation schemes, running into millions of dollars, are in progress. In New York state a measure was passed for an expenditure of \$19,000,000 for the next eleven years to buy up and plant forest lands with trees. In Canada the forest lands belong to the state but to be of value they must be made to produce wood, the kind of wood that is required and the maximum crop that such lands will produce. To do this requires a knowledge of Forestry. Heretofore most of our foresters have been engaged in fire protection or reforestation work, a limited part of the science of Forestry.

Canada is young in the science of Forestry, but we are fortunate in being able to draw on the more than a century of forest management experience of other countries to insure the success of an application of forestry principles to forest operations, and here is where the experience of Sweden lends a hand. Forest land conditions in many parts of Canada are in many ways similar to those pertaining over most of Sweden where we find "all political factions presenting a united front, in cooperating with forest owners, in formulating the most progressive and farsighted forestry legislation in force in any country." Axel H. Oxholm, Director of the National Committee on Wood Utilization of the Department of Trade and Commerce, U. S. A., following a three months tour of Europe, where he investigated European forests and forest industries, summarizes his findings as follows:

"As a result of this unity of action, the Swedish forests, which are the backbone of that country, are in a better condition at present than at any time in the country's history. Other countries in Europe are now following the Swedish example in order to safeguard this important national resource. Regulation of timber cutting and timber growing is recognized in Europe today as the most powerful medium of stabilizing European forest industries."

Great Britain is in the midst of the most extensive forest planting scheme in the history of the world. The British Government learned a lesson during the war and does not want to be faced with the necessity of complete dependence on other countries for forest products in case of an emergency. It will take years to obtain results from these activities.

Great Britain, in common with Germany and Sweden, is making important strides in the better knowledge of wood, its conversion and uses. Forest products laboratories are springing

up in these countries, with public support, since it is realized that past wood-using practices have not always rested on a scientific basis, and much waste has therefore resulted.

"One would believe," Mr. Oxholm said, "that the European forests would gradually be cut out. Such is not the case, however, since most of the important wood-producing countries already have taken steps to balance cut and growth." "All these activities," he stated, "are supported by a keen appreciation on the part of the public in regard to the value of the forests and the necessity for their maintenance. Forest fires are under control in Europe, with the result that the damage is slight from this source."

32 MILLION FOREST VISITORS CAN'T ALL BE CARELESS WITH FIRE

By Roy E. Miller, Washington

One out of every 5,818 persons who walk or ride into a National Forest starts a forest fire. Over 32 million persons visited the National Forests last year, and there were 5,549 man-caused fires. Smokers gave the most trouble. Tobacco and match carelessness accounted for 1,872 fires. One person in every 17,216 who entered the forests forgot to break the match, use the ash receiver, grind out the cigarette stub in mineral earth, or took foolish chances smoking in closed or dangerous areas.

The woods fared a little better from the campers, with one camper's fire for every 32,588 persons entering. This does not mean that the camper is any more careful or any luckier than the smoker. Smokers visit the forests in much larger numbers than the campers. So the campfire remains one of the worst hazards for the forests as well as for human lives and private property. Other man-caused fires originate in brush-burning, railroad fires, lumbering operations, or from incendiarism.

The question is sometimes raised as to whether the public, thanks to education in care with fire and to more rigid enforcement of fire regulations, is now watching its fire more closely; or, on the contrary, is getting more careless with fire in the forests.

Records of the Forest Service on fires and on number of visitors to the Forests have become sufficiently standardized in recent years to make an examination of the figures worth while. They show increases in the number of visitors and increases also in nearly all kinds of fires in 1931, "a bad fire year."

But against one fire for every 5,818 visitors in 1931, there was one for every 1,087 in 1917, when there were only about 4,000,000 visitors. Either the visitors of those days were mighty careless with fire, or the majority of fires were caused by other classes than the present numerous transient tourists and campers. For nine years the visitors improved their records from one man-caused fire for each 1,250 persons in 1922, to one for every 7,344 in 1930. Then their grade dropped 20 per cent in 1931.

Smokers' records for carelessness were very bad in 1922 - one fire for each 4,500 visitors to the National Forests. By 1930, the figure was one smoker's fire for every 21,733 visitors. Then came, alas, the slip to 17,216 last year.

Campers reached a peak of carefulness in 1929, having come up from a rating of one fire for every 6,000 visitors in 1922, to that of one fire for every 45,443. But they, too, dropped in standing, losing about 25 per cent last year.

To any who might think the Forest Service effort to gain public cooperation in preventing forest fires has been in vain, or that there is faint hope of reaching ultimate objectives in fire prevention, we submit the following simple problem in arithmetic:

If 4 million people left 3,682 fires in the National Forests in 1917, how many man-caused fires would 32 million of equal fire-carelessness have left in 1931?

Ignoring a few minor factors, the answer is: 8 times as many as in 1917, or more than 5 times as many as actually occurred in 1931.

The change is encouraging to the Forest Service as it must be to the public. And by late "Box Score" reports it looks like 1932 is going to set new records both in forest fire prevention and suppression.

THIS MIGHT WORK ELSEWHERE

The San Bernardino California Sun of August 24 carried the following interesting item:

Can You Make a Speech?
No? Then Don't Smoke in
National Forest Reserve

Can you make a speech? Well, if not it would be a wise idea to refrain from smoking within the boundaries of the San Bernardino National Forest, particularly in the Big Bear district.

For Ranger H. O. Robe of that section has hit upon a rather novel and what he thinks will be effective cure for persons who insist upon violating the Federal law and smoking within the forest.

He makes 'em make a speech.

And on the subject of "Why I Should Not Smoke on National Forest Lands Closed to Smoking."

The speech must be five minutes in length and before a sizable audience.

Ranger Robe already has started his cure, his patient being William Nye, an employee of a large Los Angeles retail grocery firm.

Nye, according to the complaint filed in the court of Justice C. R. Lynn of Big Bear, was arrested for smoking a cigarette in the Bear creek area.

On motion of Ranger Robe, the \$25 fine imposed by Justice Lynn was suspended for one year, on condition that Nye appear before the next meeting of his company's employees, numbering between 500 and 900 persons, and deliver a five-minute lecture on the above named subject.

In reporting his action to Supervisor J. E. Elliott of the San Bernardino National Forest, Robe said:

"I am in favor of securing cooperation and the attainment of fire prevention objectives in other ways besides touching the pocketbooks of individuals, particularly during these difficult times.

"The cooperation of the justice of peace in our area has been promised in such cases."

Supervisor Elliott expressed himself heartily in favor of this program.

"We look upon this as a matter where anything which brings satisfactory results is good," he declared. "In many cases a fine might cause the individual to be bitter toward us. This plan should arouse considerable thought."

Whether a penalty of this kind infringes the rule against cruel and inhuman punishments is perhaps debatable. One objection might be that the audience, wholly guiltless of fire law violations, might suffer the most severe penalty. But the psychology of the idea is excellent. A person who has listened to a stuttering, stammering speech by a culprit is apt to

remember it and to desire earnestly to avoid a similar obligation. The culprit himself will have a vivid recollection of the ordeal long after the payment of a fine has passed from memory. And the innocent members of the culprit's family will not have to go without food or clothing because of the nick in the family bankroll necessary to keep Dad out of jail. - L. F. Kneipp

YE EDITOR DISCOVERS

Major Stuart returned to Washington on September 3 from a two months' trip to the western Regions. One of the things to which he gave most time in the field was getting into the so-called back country of Regions 1, 6, and 4 to consider the question of intensity of protection in those areas. He reports that the fire season in the West has been very favorable climatically and the attack on the part of the men has been splendid. The season itself and the ability of the men to make attack promptly have given us what appears to be an exceptional record. Incendiarism has not materialized to any marked degree this season. This is attributed largely to the preparation made by the Regions in the first instance. Then, too, under the conditions existing this summer there has been slight incentive for a man to set a fire for it would be exceptional were he later employed after a fire was set. There was a mass meeting in McCloud (R-5), called by a transient group who met to protest against failure to get jobs fighting fires on the National Forests as they had heretofore. The reason for this condition was, first, that there were very few fires; and, second, when a fire occurred, we had men and equipment without resorting to the employment of transients. At the time we were not pressed to the point of calling in large numbers of men.

The Forester was impressed with the inevitable adjustments and readjustments that are taking place in the field, and will continue to take place, in the handling of forest protection work. One of the most impressive things was the prospective change in the Middle Fork of the Salmon River country where heretofore it has taken from one to three days to get extra men into fires. When he was there an airplane landing was being prepared at Crandall. Further up the Middle Fork, at the mouth of Cougar Creek, another landing field is being developed. There is already one on the Idaho Forest at Chamberlain basins. When these landings are completed it will take but several hours to get loads of 12 men into that country. This means that such men can be available, if needed, for first attack. The availability of the airplane fields will affect somewhat the road and trail layouts and may have some effect on the location of headquarters. Another impressive thing is the progress made in visibility studies. The Forester went over this question at Mt. Shasta where he spent two days with Shaw, Kotck, and the Supervisor, and on other Forests. These studies are bringing out very clearly some important factors heretofore overlooked in the placement of outlooks from the standpoint of visibility. Under studies conducted by Research and by administrative men, other Regions are achieving the same result.

No appreciable decrease in work, with the exception of large timber sales, was noticed. Recreational use, in the broad, has increased this year. Grazing is at least what it was in time and expenditure requirements, and special use work is holding up. The Regions have undertaken two additional assignments over regular work - work on the Copeland resolution and collection of data we have asked for to supplement the report submitted to the President's Commission on the Public Domain.

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Our fire record which up to September 10 looked so favorable has taken a turn for the worse, as shown by the following telegrams received from Region 5:

September 13

"Upper Matilija fire Santa Barbara uncontrolled. One hundred thousand acres. Seventy four forest officers. One thousand men. Estimate cost to date thirty thousand. *** Weather extremely bad. Impossible forecast control date and final cost."

September 14

"Upper Matilija fire Santa Barbara made no big runs today. Weather conditions slightly improved. Necessary build about thirty five miles line in extremely rough country to connect north side. Have fourteen hundred fire fighters. Area given yesterday still holds. Angeles fire controlled. Uncontrolled incendiary fires on Mendocino, Sequoia and Shasta. Expect control tonight."

Some of the comparison figures between 1931 and 1932 for the period up to September 10 are as follows: 120 extra period fires in 1932 as against 355 in 1931; 2,997 man-caused fires in 1932 as against 4,256 in 1931; total expenditures \$496,681 in 1932 as against \$3,611,436 in 1931; expenditures for emergency guards \$27,907 for 1932 as against \$179,475 for 1931; area burned 168,247 acres in 1932 as against 561,680 acres in 1931.

The week of October 9 has been proclaimed by President Hoover as Fire Prevention Week.

Francisco de Santos Hall, assistant professor of forestry in the University of Lisbon (Portugal), who for the past year has been making the Washington Office of Forest Measurements his headquarters while studying American forestry methods, left on September 17 for Lisbon to resume his professional duties. Professor Hall, who was awarded a government fellowship to study forestry in America, spent most of his time here learning the construction and use of volume tables for estimating timber stands. He took several trips into eastern and southern forest regions, including an extensive tour of the naval stores producing forests of Florida.

The homeland forests of Portugal, he says, are sufficiently extensive to supply most of the timber and naval stores required by the Portuguese market. Portugal has immense reserves of tropical woods in the Angola and Mozambique colonies in Africa. The nation also has an extensive trade in forest products with Brazil, with which large South American country it has close racial and linguistic ties. Portugal imports considerable quantities of pine lumber and hardwood furniture stock and staves from the United States, which in turn buys more than half the Portuguese output of cork. In view of the important and growing exchange of produce between the Portuguese-speaking countries and the United States, Professor Hall thinks the study of American forestry should lead to a larger volume of trade in forest products.

THE VIGILANTES

"Costly coffee" was Elmer Tervo's rueful reply to fine, court costs and 30-day jail sentence imposed, because he let his noon-day campfire get away, by R. L. Duvall, Justice of the Peace at Kellogg, Idaho.

Elmer who was caught after a pretty piece of sleuthing by Forest Ranger V. C. Moody is reminiscent of the typical "knight of the road." Following the best traditions of that profession, he started a noon-day fire beside the railroad tracks near Kellogg, Idaho, and with the help of a shiny tomato can proceeded to brew himself a cup of coffee.

But alas for Elmer. He had missed those issues of the local newspaper which told of the Vigilante Volunteers and their determination to run down every careless camper, senseless smoker, and iniquitous incendiary who might be responsible for fire in the forests.

It was this failure to keep up with the news of the day that cost him his liberty. For immediately the fire was reported local Vigilante Volunteers got busy. Arriving at the fire and sizing up the situation two of them proceeded post haste on Elmer's trail and re-enforced by Ranger Moody placed him under immediate arrest.

Confronted with the evidence and with the fire still raging, Elmer plead guilty, was sentenced and immediately incarcerated in the Kellogg jail where he sits impatiently waiting for cooler weather and the delights of the open road. R-1 News Release..

ACCOMPLISHMENT

Contracting building:

Have you tried letting out the building of lookouts, etc., to the lowest bidder, rather than paying day wages.

The Weiser recently got bids for constructing the following, all materials to be put on sites by the Forest Service:

1. Erecting 3 ready-cut, R-1 type lookout buildings, cement pillar foundations. Lightning protection to be installed by the Forest Service.
2. Building 3 toilets
3. Building 2, 8' x 10' storehouses
4. Building 1, 12' x 16' guard cabin

All buildings are frame. Forest Service to do the painting. Contractors to subsist themselves. The guard at each place to help the two carpenters as time allows.

Lowest and accepted bid for all this work	\$271.00
Next lowest bid	336.00
" " "	344.00

Worth remembering is the fact that one contractor based his estimate on \$60 to erect one R-1 type ready-cut lookout house; another, \$72. - R.H.

TENNIS SHOES CAUSE ARREST OF INCENDIARIST

Tennis shoes were the undoing of Andrew Nielson, rancher near Sandpoint, Idaho, who was recently arrested by Forest Ranger A. J. Cramer, for wilfully, unlawfully and feloniously setting forest fires*****

It seems, according to information brought out at the hearing, that Ranger Cramer, since he was the first man to reach the fire, looked at once for evidence of its origin. Finding imprints of mansized tennis shoes, Cramer immediately took up the trail which led, through timber and brush, to a near-by ranch home and within that home to to Nielson himself, still wearing the shoes.

Confronted with the evidence, Nielson who had at first denied any knowledge of the fires, broke down and confessed; first to Ranger Cramer and later to the Judge, according to the records.

---R1 Press note.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT *** THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES, WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER

Theodore Roosevelt

Vol. XVI No. 35

Washington, D. C.

October 10, 1932

PRECEPTS AND PRACTICES

By L. F. Kneipp, Washington

As in other phases of its activities, the Forest Service, over the years, gradually has developed a code of principles and practices to govern the conservation of the scenic and inspirational qualities inherent in large natural areas such as the National Forests. The soundness and desirability of these principles and practices are confirmed by popular opinion and by preponderant opinion among the field officers of the Forest Service itself. They have been publicly proclaimed by the Forester in articles, addresses, instructions and procedures. Such proclamations, being accepted as pledges of action by those actively interested in the subject, have dispelled negative impressions as to the ability of the Forest Service to adequately safeguard and constructively facilitate public enjoyment of what are regarded by many, perhaps the majority, as public assets of major and frequently dominant importance. On paper our record is not only clear but subject to high commendation and approval by those sections of the general public most keenly concerned in the esthetic or spiritual qualities of the public properties.

But on the ground conditions sometimes are not quite so happy. One skims along a delightful Forest highway, margined by trees and free from any of the unnecessary blemishes of man's struggle for profit, and congratulates himself that here within the National Forest, at least, the lovers of natural beauty can find the realization of their hopes and ideals. But he rounds a curve and finds to his consternation that the red, white, and blue filling station which hugs the road and flaunts its gaudy and inharmonious colors against the peaceful forest background is actually on National Forest land and operating under permit. The only consoling thought is that it must be the sole exception, some hangover from earlier days, allowed before the demands of public good taste were crystallized into a definite code. Even then, he wonders why nothing had been done to correct the matter. The eye sore drops behind, confidence in the integrity of Service administration begins to dominate. This confidence, however, receives a jolt when there comes into view another establishment which, in gaudy colors and from every perspective, hammers the eye with the name of the establishment, the name of its owner, the name of the brand of gasoline dispensed, etc. The hope that these two will be the only exceptions is again revived, only to be shattered by the sight of one of the guard stations of the Forest Service itself less than half the prescribed minimum distance from the edge of the highway. One then turns into a summer home community and painfully observes that some of the structures are patently below the

minimum desirable standard; that some are unpainted, although the plan of management prescribes painting in harmonious colors; that some stand on high stilts, hovering over all the accumulated debris of belongings too poor to keep and too good to throw away, although the plan provides that all such substructures shall be latticed or screened by shrubbery. Sometimes the lot is littered with decadent bed springs or stoves; sometimes the resort located to capitalize a spot of exceptional scenic beauty and inspirational quality, has diffused the unavoidable evidences of its operation, its industrial area, throughout the entire tract occupied, thus detracting from the very elements upon which its profitable operation depends.

One wonders why all this should be. Lack of time can not always be the explanation, since the objectionable condition is manifest to the first glance and five minutes would suffice to bring it to the permittee's attention. Lack of knowledge on the part of the Supervisor or District Ranger is hardly a valid alibi, since there is no question as to the frequently with which the particular area comes under their personal observation. The remaining explanations therefore must be either lack of confidence in the soundness of the prescribed principles or lack of courage in their enforcement.

It sometimes is said of the game laws that the majority of the people approve their enactment but oppose their enforcement. Perhaps our principles in relation to recreational management are in the same category. The argument frequently is offered that people generally prefer to congregate in dense groups on the camp grounds rather than to scatter out into spots of greater seclusion and attractiveness; that summer home permittees desire their houses in close proximity to each other rather than separated; that if the permittees desire to litter up their lots and feel at home they should not be too rigidly prevented from doing so; that if a structure is satisfactory to the occupant he, after all, is the one most vitally concerned and should not be compelled to meet requirements which he himself regards as unnecessary; that the traveling public wants its filling stations and lunch counters close to the side of the road and will not digress fifty yards offside to patronize such an institution; that the traveling public also wants to know without stopping the varieties of gas and merchandise dispensed, the name of the proprietor, and other information afforded by profuse advertising. All of these contentions deserve close study and analysis. If they are wholly valid and governing, our principles should be modified; if they are unsound and by being contrary to preponderant public opinion are in effect anti-social, they should be disregarded.

Perhaps it is the prevalence of these contrary opinions that causes a certain degree of diffidence on the part of field officers in the enforcement of the prescribed requirements. Sometimes the relations between the permittees and the field officers are close and cordial and cooperative, making the latter reluctant to tell some good friend of the Service that his toilet violates every sanitary regulation of the State, or that his gaudily painted structures are an affront to the traveling public, or that the accumulated debris surrounding his summer home is obnoxious to all of his neighbors. Such possibilities are wholly understandable.

But they leave one question, and a vital question, without a satisfactory answer. That question is: Can and will the Service so manage the use and occupancy of areas of outstanding scenic and inspirational quality as to preserve and yet appropriately utilize their intangible public values? The final answer to that question markedly will influence the determination of the future and permanent field of the Forest Service in the management of Federal properties. The conclusion is almost inescapable that if the Forest Service can not or will not so manage those areas the natural inclination will be to suggest their management by some other agency which holds out promises of results more nearly in accord with

the indicated desires of the general public. However, no feeling of pessimism need develop at this point. The Forest Service can manage such areas in a wholly satisfactory way. Its principles of management are entirely sound and are acceptable to the majority interested in the subject. The one remaining requirement is to give them full and effective application. Certainly the Forest Service is competent and able to do that.

THE SANTA BARBARA FIRE

The interest not only of the Forest Service but of the entire State was centered from September 7 to 18 on what was the largest and perhaps most destructive fire within the National Forests of California in the history of Region 5. About 200,000 acres of watershed were included within the outside limits of the fire; over 1,000 men in the 16 camps on the line, 105 Forest officers, 50 officers from State, counties and cooperating agencies; all forms of transportation employed from airplanes to boats; all methods of communication used from heliograph to new Forest Service portable radio. Only two men were seriously hurt, but several narrow escapes were caused by sudden winds, which twice hemmed in a crew of 40 men under Supervisor Nash-Boulden on the first night of the fire and again several days later cut off a woman packer and a crew of 65 men in what is fortuitously known as Last Chance.

About 7:00 on the morning of September 7 a careless hunter dropped a match or left his campfire in the chamiso in rough country cover on the North Fork of Matilija Creek. By 5:00 P.M. it had spread over 2,000 acres but was two-thirds under control with a prospect of complete control by morning. Without warning a sudden high wind spread it over 30,000 acres in five hours. With this flying start, it spread the second day and night into the Upper Matilija country. By noon the third day it was in the Sespe Gorge where it gathered for another leap and with the aid of the wind made 12 miles in an air line in less than an hour on both sides of the Sespe River. The battle then centered for several days on stopping the advance at Topatopa Ridge but on the night of the 16th the blast came again and 18,000 acres on various fronts and 5,000 to the east of the well-named Devils Heart Peak were swept by the flames. On the 17th the heavy wind threatened to carry the fire towards Ojai but by the evening there was a change, the humidity rose, the fire front was broken by sections of dead line enabling the men in the 16 camps to again do effective work and the fight was over on the 19th.

Fifteen members of the R. O. and Experiment Station, including the Regional Forester and Director, were present. All Forests from the Eldorado south sent men and the Supervisors of the Angeles and San Bernardino together with a large part of their forces came to the aid of their southern California brothers. When the damages were hastily inventoried it was found that the Forest had lost the Reyes Peak Lookout, some of the conifer type on Pine Mountain, most of the watershed above the Juncal Dam which supplies Montecito, and of the drainage of Sespe Creek forming part of the headwaters of the Santa Clara River, much of Santa Paula Canyon, also a tributary of the Santa Clara supplying water for the town of Santa Paula and irrigation for the Santa Clara Valley and the Upper Matilija drainage,—the source of water for Ventura and the Ojai Valley.

Opinions regarding the size and cost of this fire must take into account the unexpected high winds, the extremely difficult topography and the lack of roads in the interior part of the Forest affected. The Board of Review has more problems to solve. — R-5 Bulletin

FORESTS AND UNEMPLOYMENT

In order to ascertain how many men might be employed to do serviceable work on State and National Forests as an aid to overcoming unemployment, the Charles Lathrop Pack Forestry Foundation recently sent out a questionnaire to the various State Forestry Departments, National Forest Regions, and the Indian Forest Service. The following digest presents a summary of planting, improvement, and protection measures which could be immediately undertaken by the above organizations provided funds were available. It is obvious, of course, that for most of the activities employment would be seasonal, varying from two to ten months per year.

The Summary of Digest

State Forest Lands:

Number of men who could be employed - 38,000, at a cost of approximately \$30,000,000.

Federal Forest Lands:

Number of men who could be employed - 32,000, at a cost of approximately \$22,000,000.

Digest of Questionnaire

Planting is needed as follows:	Man Days	Cost
By State Forestry Departments	565,010	\$ 770,300
By Federal Forest Service and Indian Service	711,876	2,501,500
Fire Towers, Fire Equipment, etc.		
Needed as Follows:		
By State Forestry Departments	665,100	1,904,940
By Federal Forest Service and Indian Service	73,875	478,200
Miles of Roads, Fire Trails, Fire Breaks, Telephone Lines, etc., Needed:		
By State Forestry Departments	3,249,610	5,596,275
By Federal Forest Service and Indian Service	6,179,600	8,033,300
Increase in Fire Personnel Needed:		
By State Forestry Departments	447,373	1,411,800
By Federal Forest Service and Indian Service	63,050	240,400
Other Forest Improvement Work, Including Improvement Cuttings, Insect and Disease Control, Acquisition of Forest Land, Construction of Recreation Sites and Roads, etc.		
By State Forestry Departments	1,809,388	5,564,740
By Federal Forest Service and Indian Service	1,457,820	6,573,000
Other Types of Needed Work:		
By State Forestry Departments	4,361,619	15,128,247
By Federal Forest Service and Indian Service	914,460	3,547,500
Total	20,498,761	\$51,750,202

These figures are regarded by the Pack Forestry Foundation as conservative. Its study of the answers to separate questionnaires reveals that in many cases the replies have been based on plans already made, and not on the amount of work that could be done if the budget for doing it were sufficient. The digest does not include work that should be done on private land.

NAY, NAY, MR MURPHY

By R. F. Hammatt, R. 1.

Mr. Murphy's reminiscences ("History Repeating Itself After a Generation," in the August 15 issue of the Service Bulletin) are exceedingly interesting, but R-1 contends that his title is decidedly misleading.

In proof whereof we submit:

That in Maine (a generation ago, was it, Mr. Murphy?) the emphasis with Volunteers was evidently on suppression, and the Volunteers were apparently allowed (if not encouraged) to "run wild" with public funds.

But in Montana and Idaho suppression is a side issue. We hope these Wardens will "suppress" if they get the opportunity, it is true, but we're not disappointed if they don't. And the Volunteers can't run up bills, big or small.

Suppression is a big job with R-1, all right, but it's not our only "big" job. In fact some of us doubt, now and then (despite the fact that it may be lese majeste so to do,) if it is the biggest of our fire jobs, even.

One thing we're after, with our Volunteers, is fire prevention. But what we're after, even more than this (and if this be treason, make the most of it) is something far bigger than fire, even if suppression, presuppression, and prevention be rolled into one.

Jim Templer, when he was Assistant Supervisor of the Deerlodge, in 1931, adapted the Maine idea of a generation ago to meet modern conditions. I can't quote Jim exactly, but I'm willing to bet that the following is a fair statement of his objectives - which belatedly have been adopted in toto for the Region.

1. To acquaint influential citizens with Service problems and policies - protection being but one such problem - in order to get and hold their interest and support.

2. To prevent man-caused fires, before they start, among these influential citizens (some of whom might be careless or indifferent or both) themselves.

3. To mould opinion and help enforce it, by means of these Volunteers, among the public generally.

Jim had to "go it alone" in 1931, on the Deerlodge. But in 1932 his idea was swallowed in its entirety, one or two frills added (to popularize it and capitalize on it) and there emerged the modernized version of the century-old Maine idea.

All credit is due Maine and the pioneers. We in R-1 still think the basic idea is a good one. But we like (naturally!) our own adaptations, our own frills and, it must be confessed, our own "bally hoo." We may get into trouble but with Mr. Murphy's friendly warning we shall try to side step the Maine (e) difficulties at least!

And when Mr. Murphy sees our report, with its cross-section of field opinion, we believe he'll be optimistic, too. Just as a sample of what has happened and so as to whet his curiosity, here is one quotation from that report, - copy of which will be sent to him as soon as it is off the press.

"Every Supervisor in R-1 definitely wants the organization continued in 1933. A few believe it should be continued because further trial may demonstrate its worth; most Supervisors believe worth has been demonstrated and are already enthusiastic.

"Before presenting the following quotations from Supervisors, beginning with Templer, who recommended the organization, and ending with Martin, who best summarizes its potentialities, mention should be made of the fact that volunteer Wardens played a vital part in

one of the most spectacular far-reaching and successful (fire) law-enforcement cases in R-1 during 1932. It is unfortunate - from the standpoint of giving emphasis to the value of the Volunteer organization in law-enforcement - that common prudence prohibits revelation of details at this time."

MORE EARLY FIRE - AND FORESTRY!

F. Andre Michaux was a botanist who was sent to the United States in 1785 to make a study of American flora. The French government kept him at this work from 1785 to 1796 during which time he first described a number of new species of trees. His work was carried on by the son who visited America and completed the "History of North American Oaks," published in France in 1810. In this work, Michaux writes of the characteristics of certain of the oaks and among his descriptions he makes the following comments, which have been translated from the French:

The bear oak grows generally in the pine lands and pine barrens. This oak seldom gets to large size because of the frequent fires set by the settlers to consume the dead grass or to drive game to places where it may be taken more readily.

From Baltimore to North Carolina the forests are generally greatly impoverished by fires which commonly occur every spring or fall. These fires are most carelessly set by any traveler or by any settler who may care to rid the ground of underbrush. Such burning causes the destruction of many fine trees and the loss of the litter that might better have been used on the fields. America will some day realize how much these fires are ruining the forest and will take steps to stop them. Foresters will be needed to care for such forests as will have escaped destruction. They will find in the ashes, walnuts, maples, and oaks species that will well repay care and propagation. - E. N. Munns.

YE EDITOR DISCOVERS

The prevalent opinion is that governmental functions are ponderous and slow, but those behind the scenes frequently are in a position to know that this is not the case. For example, it has only been about three months since the regular highway appropriations were made and only a little more than two months since the emergency forest highway appropriations were approved by Congress. Nevertheless, during the past two weeks or more there has been a constant flow of cooperative agreements for road construction and of recommendations for the awards of bids passing through the Forester's office en route to the Secretary for final approval. This means that it is only a brief further step to the actual initiation of construction work, since each approved bid normally should be quickly followed by the swing of axes, clearing of rights of way, the rattle of steam shovels, the ponderous movements of graders and scrapers, and the organized action of scores and hundreds of men engaged in the manifold labors of highway construction.

It is perhaps possible that private corporations, following approval by the board of directors of a construction item in the budget, might in isolated cases initiate actual construction even more promptly than a government agency would be able to do. It is not probable, however, that in so large a number of projects, involving so many elements of cooperation and planning, there would be any private organization which could show a better record of speed and efficiency than that which can be demonstrated in connection with this year's program of forest highway construction. Men to whom employment is a most acute need actually are going on the payrolls and highways are being pushed through difficult locations for the convenience of the public in a remarkably short time after the provision of the necessary funds by Congress.

The Matilija fire on the Santa Barbara, a brief account of which was given in the last issue of the Service Bulletin, proved to be the largest that has ever been handled during the entire history of Region 5. A full description of the fire is contained in this issue.

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As a result of several years of consideration and debate, a statement clearly defining the place of recreational use in National Forest management has been approved by the Forester and issued to the Regions for their future guidance in the handling of this activity.

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Fellowships in forestry are again being offered by the Charles Lathrop Pack Forest Education Board. Approximately six fellowships are available for the year 1933-34. They will range from \$500 to \$1,500, although in special cases higher sums may be authorized by the Board. Appointments may be made for twelve months or for a longer or shorter period, in accordance with the scope of the work, and may be renewed at the discretion of the Board.

Awards will be made to men who demonstrate natural powers of intellectual and personal leadership, and who intend to make forestry their life work. There are no restrictions as to age, educational status, or personal experience, but ordinarily the fellowships will be granted only to men of American or Canadian citizenship who have finished an undergraduate college course or its equivalent.

Applications for fellowships must be made on or before December 31, 1932, to the Secretary of the Charles Lathrop Pack Forest Education Board, 1214 Sixteenth Street, N. W., Washington, D. C. The necessary application form and further information will be supplied by the secretary on request.

SAYINGS BY SOUTHERN FARMERS

A timber buyer approached an old country doctor in Mississippi to purchase his timber. The farmer-doctor had been unable to save up money. His reply to the buyer was: "No, I wouldn't care to sell the timber, that's my life insurance policy which I'm leaving for my wife and children."

"Sure! grow timber while you wait - you're going to wait anyhow," said a sturdy Georgia farmer in reply to the idea that it takes time to grow trees.

"I'm getting old enough to grasp new ideas -- I'm going on 74 years old," said a farmer attending a woods demonstration meeting in North Carolina on growing timber as a crop.

"A good timber cutter is a man who can get a good log out of a bad tree."

"Of course, set out pines in your old fields -- it doesn't make you grow old any faster," said a Master Farmer in Newton County, Mississippi.

"Hit takes a weak mind an' a strong back to cut that timber," said a woodsman-farmer in western North Carolina in reference to some old scarlet oak wolf trees.

A farmer standing near a little country store in the white oak country of the Ozark mountains in northern Arkansas told how timber was their chief source of living in these words: "Crossties is legal tender round heah. We-all brings in our ties an' takes back home our flour, sugar, coffee, terbakker, calico and overalls." - W. R. Mattoon.

GROWING BIGGER AND BETTER ASPEN

An attempt to improve an aspen stand on the Chippewa National Forest was undertaken by the Lake States Forest Experiment Station in 1926. The common commercial practice is to cut all aspen trees which are merchantable. This leaves a ragged stand of small and defective trees encumbering the ground, practically none of which are valuable for a second cut. The Station sought to determine whether the aspen stand could be improved and its rate of growth increased if it were cut by some selective method. Two plots in a 38-year old stand were cut selectively, removing 30 and 50 per cent of the crown areas. A third was left uncut. When remeasured in 1931, diameter growth on the plots from which 30 and 50 per cent of the stand was removed was found respectively to be 60 and 80 per cent greater than on the uncut plot.

By judicious thinnings, started at 20 years of age when fuel wood can be removed, and repeated at 30 to 35 years of age when pulp and box bolts may be cut, the growth of aspen can be greatly stimulated and trees of sawtimber size produced much earlier and of much better quality than in unthinned stands. Such treatment will pay if the aspen is growing on good soil and if a local market is available.

Incidentally, if it is desired to convert aspen to a forest of maple and yellow birch or even spruce or pine, thinnings and partial cuttings favoring these species will hasten the change. The surest way to perpetuate aspen on heavier soils is to cut it clean. -

Technical Note, Lake States For. Exp. Sta.

FROM AN INSPECTOR'S REPORT

"Recreation usage of a type that is certainly distinctive to the National Forests and of real merit as a matter of public service, as I see it, was encountered along Mann Creek on the Weiser. The ranch people and workers, the salt of the earth as one of our party called them, from the nearby hot valleys found refuge at least over the week ends here in a spot that is not particularly beautiful but pleasant and cool, with some excuse nearby for trying to fish. Old model T Fords, trucks and other ramshackle vehicles bring in the families and their camp outfits. Babies lie about in the shade and Dad, probably because he doesn't know how to rest, is often up on the hill breaking up a load of firewood to take home. In addition to the recreation seekers other local people, farmers mostly, were cutting wood and piling it into their touring cars or coupes, regardless of the remnants of upholstery, and taking it back to the valley. Areas of this sort which are clearly under intensive local use much of which is without the restrictions of permits, meddling guards and numerous don't signs, with selected camp sites protected from stock and with minor improvements and sanitation, are not only inspirational but otherwise highly useful. They are fine examples of the distinction between National Forests and National Parks or privately owned woodlands in general."



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

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Theodore Roosevelt

Vol. XVI, No. 36

Washington, D. C.

October 24, 1932

A WORD FROM THE FORESTER ON PRIMITIVE AREAS

During the past summer I made trips through several primitive areas and also into other relatively inaccessible portions of the National Forests. I was greatly impressed with the comparative ease with which, by use of modern machinery, one can open up a country by roads even when of low standard permit extensive public travel. Our purpose is to take advantage of these mechanical means to meet our protection and administration problems. While we have much farther to go in this respect, our regular and emergency funds for road construction have permitted us to make substantial progress. Again, the airplane, because of the occasional availability of areas suitable for landing fields in back country, is making country otherwise difficult to reach comparatively simple to reach. I look for the early development of the autogiro for satisfactory use on landing areas in the back country of much smaller size than the landing fields required for airplanes. An experiment conducted in Region 5 this summer in the canyon country gave promise of the autogiro being much more adaptable and less exacting in its ground requirements than the airplane. We shall encourage and take advantage of such opportunities to reach back country to facilitate its protection and administration.

Speaking broadly, there are few extensive areas of National Forest land where the reduction of inaccessibility by modern transportation means and accommodations is not being considered by Forest officers. The urge is to open up the country as the outstanding means of rendering it accessible for protection and administration and giving the people the opportunity to enjoy its natural values. On the other hand, I have found among our field officers a reluctance to open up certain extensive National Forest units in the back country because to them it is neither necessary nor desirable as a means of giving the area sufficient protection and administration but rather an objectionable thing to do in capitalizing the natural values found there. By whatever name such units are called, there is unanimity of opinion among our field officers that these favored areas should not be opened up except under compelling economic circumstances. There is an element of sentiment in it but a larger element of good common sense and appreciation that favored primitive conditions should not be jeopardized or an irremediable act taken in the urge to open up country.

We have been calling such areas "primitive areas" under a policy providing for their designation for retention in a state as near the primitive as is practicable consistent with economic demands. It is a conscious effort by direct action to withhold the injection of modern transportation and accommodations into such areas unless it is clearly unavoidable. This position contrasts with the usual position taken that wherever the expense can be justified National Forest areas should be made more and more accessible and accommodations fitting to the times be permitted.

I think the policy is a sound one. From the long-time view I fear we will have too few of the so-called primitive areas rather than too many.

CUTTING WOOD ON THE PIKE

By M. W. Thompson, R. 2

The Pike National Forest is located a short distance to the west of Denver and Colorado Springs. It is comparatively accessible, having a rather complete system of good roads. On this account and because of the large population within and nearby, the Forest has been drawn upon for large quantities of fuel wood during the past year.

The City of Denver established during the past spring two camps in the Forest where wood is cut for the use of residents of the City who are unable to purchase fuel. The laborers employed at the camps are heads of families dependent upon the City, or one of the charitable organizations there. Each man is detailed to the camp for a period of three weeks. He receives no compensation in cash, but is furnished clothes and tobacco and his family in the City is supported.

The first camp established is about nine miles from Buffalo, on lower Redskin Creek, at an elevation of 7,900 feet, and in the ponderosa pine-Douglas fir type. The region surrounding the camp was recently cut over though sapling and pole stands occur in which no cutting had taken place. These stands are thinned, sticks as small as one inch in diameter being utilized. In addition the tops and cull logs left from the old cutting, as well as the pitch stumps that have laid on the ground for many years, are used. All green trees to be cut are marked by a Forest officer and a well-spaced, improved stand, averaging from 250 to 300 trees per acre, remains after cutting.

The other camp is located about seven miles from Estabrook, at an elevation of 8,400 feet, toward the head of Redskin Creek, and near the lower limits of the lodgepole pine type. The stand in the vicinity of that camp consists almost entirely of saplings and small poles. The number of trees per acre varies from 5,000 to 10,000, the stand being typical of that found on extensive areas in the Rocky Mountain Region which burned over about 50 or 60 years ago. Sample plots established there a few years ago by Supervisor Keithley indicate that the stand should be thinned so as to leave about 400 to 450 trees per acre. So this is the number of trees that is left after the thinning, the average diameter of the trees left varying from two inches to five inches in diameter at breast height. A Forest officer marks with red paint the trees to remain and all other trees are cut. All material one inch or larger in diameter in these trees is utilized for fuel and an average of seven cords is obtained per acre.

Cutting the wood at each camp costs about 75¢ per standard cord. Hauling a portion of the wood to Denver has been contracted at \$3.50 per cord. The length of haul is 60 miles, one trip is made per day, and about 2-1/2 cords constitutes a load for a truck. While 15 miles of the road are paved and the balance surfaced, it is not likely that hauling can be continued at the above rate.

The Colorado & Southern Railway Company has given the City free freight to a value of \$1,000 and cordwood is now being hauled to Estabrook for shipment to Denver via the railroad.

The cutting at both of the above camps is being done under free administrative use permits. The Forest Service marks or designates the trees for cutting and furnishes a good deal of the equipment used in the operation. While local Forest officers cooperate with the officials of the City in running the camp, its management is handled by the City.

Two other administrative use permits have been issued for fuel wood - to the Denver and the Colorado Springs branches of the Citizens Unemployment League of Colorado. Only one camp has been established. It is located in Casey Gulch to the west of Sedalia. Little progress has been made there because it has only recently been installed.

The officials of Arapaho and Jefferson Counties have recently applied for administrative use permits but arrangements for them have not been completed.

Individuals in Denver and Colorado Springs and in a number of other towns of the State are taking out a great many sales for fuel wood. Over 200 such sales have been made on the Pike Forest during 1932 and the number is increasing rapidly. The value of the timber sold is approximately \$700, the majority of the sales being for the personal use of the purchaser and for wood of a value of \$1. In addition a great deal of wood is taken out by local residents and settlers under free use.

It is desirable to have dead timber removed from the forest, but the thinning and improvement cuttings in green timber described above are of far greater value from the standpoint of both silviculture and fire protection. Growth will be greatly stimulated as a result of the cutting and the thinned stands, especially in the lodgepole pine type, will be much more easily protected from fire than the unimproved, dense forest. So there is a full justification for the administrative use mentioned. In addition work is being provided for the unemployed and fuel is being made available to the needy at a comparatively low public expense. A total of about 500 acres of forest lands have been put into very satisfactory silvicultural condition and probably an additional acreage of an equal amount will have been improved before the work has to be discontinued during the early winter.

TIMBER RETREATS WHEN MAN MISTREATS

By A. E. Wieslander, California For. Exp. Sta.

Steadily, though slowly, the ponderosa pine belt in Eldorado County, Calif., is being pushed back and up the Sierra slopes. Because of man and his occupation of the land, there has been a retreat from the 1,000-foot to the 2,500-foot level on a 30-mile front, a distance of nearly 10 miles, leaving a deforested area of 162,000 acres. In addition there is an area of second growth nearly as large, three-fourths of which is less than half stocked. And this condition is typical not only of the entire western front of the pine belt in the Sierra Nevada but of the Douglas fir belt of the California coast ranges.

The change from forest to deforested land has come about very gradually. Most of the present residents of Eldorado County do not know that the region was ever timbered. But a recently completed survey of the natural vegetation of Eldorado County discloses indisputable proof of the former occupation of this land by pine. Scattered relict individuals and groups of ponderosa pines bear mute evidence of former forests, as does also the presence of the California black oak, which invariably grows with this species at its lower limits and survives by sprouting when the pine succumbs to the ax and fire. Several instances were found where the boundary line between second growth and nonforest cover coincided with property-line fences, and the cemeteries of Eldorado and Frenchtown have preserved excellent second-growth pine stands. Some of the deforestation may be attributed to the Indian, but undoubtedly the larger part has occurred since the advent of the white man, whose first inroad probably began with the establishment by Capt. John Sutter of a sawmill at Coloma. In this mill race, gold was first discovered in January, 1848, by James Marshall. The feverish mining activity which followed gave great impetus to lumbering, and by 1855 the first official record shows a total of 39 sawmills in the region. For the next decade 35 to 40 sawmills were constantly in operation. Such names on the map of the county as Sawmill Creek, Sawmill Ravine, and Shingle Springs testify to the lumbering activities of that period. By 1870 the lower ponderosa pine belt had been largely logged off.

FORESTRY WINS IN ARKANSAS

By W. R. Mattoon, Washington

Two 4-H Club boys, Curtis and Cecil Davis, brothers, won over all other contestants at the Arkansas Annual 4-H Club Camp in demonstrating good farm practices. The Davis brothers' subject was the effect of forest fires.

The demonstration was made with a model in two sections, one showing a natural unburned forest cover, and the other a burned-off forest cover, set fire to in the presence of the audience. Equal amounts of water were then sprinkled or "rained" on each plot, with the result that the run-off from the forested plot was nearly clear and small in amount, while that from the burned-over forest cover was muddy and large in quantity. Each step was described by the two boys in monologue and dialogue.

The reward for their skill and enterprise is a free trip to Chicago in December to attend the International Livestock Show where they will compete for the 4-H grand championship prize in demonstrating a good farm practice.

Curtis speaks:

"We are a team of 4-H Club members with a forestry project. We come from Jefferson in Jefferson County. My name is Curtis Davis. I have been in 4-H Club work 4 years. I will ask my partner to introduce himself."

Cecil speaks:

"My name is Cecil Davis. I have been in 4-H Club work for 3 years and during the past year with my partner have carried a project in farm forestry."

Curtis speaks:

"Arkansas has, at the present time, approximately 22 million acres of forest land. A large per cent of this area is in a poor state of production due to improper management and forest fires. To continue the lumber industry and wood manufacturing plants in Arkansas in the future, it will be necessary to utilize the entire area of non-agricultural cut-over lands to the fullest extent in growing successive crops of timber.

"During the past year my partner and I, together with other forestry club members, have been carrying a woodland improvement demonstration which includes fire protection and proper handling of a specific piece of timber. For the purpose of this demonstration my partner and I will take up one phase of this work and demonstrate to you the damages resulting from forest fires and measures to take to keep fires out.

My team mate will discuss means of forest fire prevention."

Cecil speaks:

"Extinguishing forest fires is hard work. That 'an ounce of prevention is worth a pound of cure' applies well to forest fires. Prevention of forest fires is far easier than fighting them. I shall now demonstrate to you some protective steps to help keep fires out of the woods. This may be done by the use of fire breaks. (Makes a fire break in the forest cover on the model). These fire breaks should actually be from 10 to 12 feet wide and so located in the woods that the timber will be broken up in small blocks. Any scratcher used on the farm can be used to build fire breaks. Another tool which comes in handy is a fire rake. (Shows rake and demonstrates its use on the ground). It is rather difficult to show the effectiveness of this work without being in the woods. Forest fires are very detrimental to game. In spring and early summer fires are responsible for the destruction of many young animals and birds. In many cases mature birds and animals are killed. Fires consume the food supplies and destroy the natural breeding places of both game birds and animals. Fish are also killed due to the presence of lye washed from burned-over woodland and the sudden change of temperature resulting from the removal of the timber. (The model, about 4 feet square



Cecil and Curtis Davis of Jefferson, Arkansas, prize winners
in 4-H State Club Demonstration Contest

has sand and soil on bottom, then humus, mulch of leaves and trees. Fire is set on one side of miniature fire break which shows how it stops fire).

"My partner will now show you the damage to timber from forest fires."

Curtis speaks:

"Fires cause much damage to forest trees themselves. In many cases they even kill mature trees. This block from a log which I hold in my hand shows considerable damage from forest fires (points out damage). The woods on which this block of timber was grown have been burned many times by forest fires. The possible growth has at least been cut in half. By counting the rings on this block, the approximate age may be determined. This block is 49 years old. Now let us compare this block with one taken from a stand of trees which has never been burned. This much larger block is only 30 years old. You can easily see from this demonstration the damage forest fires do to saw timber.

"An impression which has been strongly imbedded in the minds of many farmers is that burning off the woods in the fall or early spring will result in better pastures. Careful study and observation will prove that this point is wrong. The tender nutritious legumes and grasses, such as lespedeza and carpet grass (holding up some of each in hands) are destroyed by the continued practice of range burning. Tough and far less nutritious grasses such as this broomsage are favored by burning. When young oaks and other hardwoods are burned off several sprouts spring up near the ground level as in the case of this small tree which I hold in my hand. Thickets of such sprouts prevent the growth of tender grasses.

"Forest fires impoverish soil principally by robbing it of nitrogen, its most essential fertilizing element. The leaves which fall on an average acre of forest have a fertilizer value amounting to \$2 to \$3. The leaves also hold moisture and gradually let it seep out. When the leaves are burned the rain runs off immediately, swelling streams and causing floods."

(Pours water on an inclined plane covered with woods mulch. Picks up a handful and squeezes it, showing the large amount of water held and available.)

Cecil speaks:

"We are now going to pour equal amounts of water on the burned and unburned areas, representing the rains that fall on our forest land. (Sprinkles one quart of water on each side of the firebreak). You will note by looking at the receiving jar that the water from the burned section is running off rapidly and carrying with it soil particles and plant food. Now compare this with what is happening on the adjacent unburned forest land. The jar has only a small amount of water and it is nearly clear.

You can readily see that the water is mostly retained by the leaves and humus, and seeps gradually in the ground. This shows you how the unburned forest protects the soil from erosion and stores up water that feeds the springs and streams so essential for both agriculture and industries.

"This concludes our demonstration. Are there any questions?"

LARKSPUR ERADICATION

A study on the eradication of larkspur, conducted by A. R. Standing, Inspector of Grazing in Region 4, has brought out some interesting facts. Some of the results of this study, as discussed in a recent report, are as follows:

"Mr. Standing made a check in June of the plots on the Fishlake National Forest where several methods of larkspur eradication were tried last year.

"On the plot that was grubbed there was 25.9 per cent as many plants as last year; on a spaded plot there was 31.7 per cent as many plants as last year; and where the plants were treated with atlacide in powdered form at the rate of one pound per 100 square feet

of crown surface, there was 86.4 per cent as many plants on one plot and 67.5 per cent on another. A third plot treated with twice the amount of atlacide had 47.8 per cent as many plants as last year. On all of the above plots a few of the plants counted were seedlings and some had been missed and not treated or grubbed last year, but most were regrowths of the old plants.

"A few of the plants surviving from the treatment of 100 pounds of atlacide per 100 square feet of plant surface were in a weakened condition, as indicated by a portion of the clump being dead, a less luxuriant growth of the live portion than had been made by untreated plants, and a yellowish color of the foliage. Most of the plants so treated, however, appeared as vigorous as untreated plants. The surviving plants that had been treated at the rate of 200 pounds of atlacide per 100 square feet of plant surface were mostly in a weakened condition.

"The grubbing and spading work was done about as a good crew would do it, no special effort being made to do an unusually good job. An ordinary mattock was used which apparently did not have a long enough blade to go deep enough to remove as much of the root system as necessary for completely effective work. The heavy sage-grass ground cover might have also partially prevented a higher per cent of eradication.

"This one experiment would seem to indicate that the use of atlacide in powdered form for larkspur eradication is not practical, but it is admitted the experiment was on a small scale and under only one set of field conditions. It is probable that a heavier application of the chemical or several light applications would kill a high percentage of the plants, but the cost of either method would equal if not exceed the cost of effective grubbing.

"In the comparisons of costs in Mr. Standing's report, he used a price of five cents per pound for the chemical based on the statement of Professor Spence of the University of Idaho that the ingredients could be purchased and mixed at that price. However, the State of Utah paid ten cents a pound last year and nine cents a pound this year for atlacide. This price would, of course, favor grubbing as compared to eradication by chemicals more than was indicated by Mr. Standing's report."

YE EDITOR DISCOVERS

Offices of the Luquillo National Forest at Rio Piedras, Puerto Rico, were practically wiped out by the hurricane of September 24. Supervisor William R. Barbour cancelled a scheduled trip to the mainland, in order to assist in relief work sorely needed in the vicinity of the National Forest. He estimates that 75,000 families were left homeless. In the National Forest, practically all the leaves were stripped from the trees, and much timber was blown down.

The Supervisor's house was unroofed by the wind. The upper office at the forest nursery and the garage and storerooms were totally wrecked, and Federal property and records were lost or buried under the ruins. The ranger cabin above Catalina was also unroofed.

No report is yet available on the destruction of forest trees grown for shade on the coffee plantations. Destruction by the hurricane of 1928 of many of the trees was a serious blow to the coffee-growing industry.

A committee of nineteen leaders in the lumber industry was recently appointed by Secretary of Commerce Roy D. Chapin to cooperate with the National Committee on Wood Utilization of the Department of Commerce in the preparation of a lumber manual for the use of the Federal Government.

This lumber committee, representing producers of both softwoods and hardwoods, will

contribute the knowledge of the best minds in the industry, supported by years of laboratory and practical research. In the opinion of Secretary Chapin, the project is particularly timely at present since its successful execution will not only lead to important economies in the expenditure of Government money, but will also have the effect of bringing industry together for the purpose of promoting efficient wood using practices.

The Chairman of the new committee is Goerge F. Lindsay, an executive of the Weyerhaeuser associated interests, Saint Paul, Minnesota. The Vice Chairman is W. M. Ritter of the W. M. Ritter Lumber Company, Columbus, Ohio. The other members are as follows:

Fred Arn, Chattanooga, Tenn.; L. S. Beale, Chicago, Ill.; C. Arthur Bruce, Memphis, Tenn.; John M. Camp, Franklin, Va.; V. L. Clark, Des Moines, Iowa; Wilson Compton, Washington, D. C.; W. B. Greeley, Seattle, Wash.; J. P. Hemphill, Madera, Calif.; H. C. Hornby, Cloquet, Minn.; Owen Johnson, Manchester, N. H.; B. W. Lakin, McCloud, Calif.; C. R. Macpherson, Palatka, Fla.; A. S. Murphy, San Francisco, Calif.; F. W. Reimers, Hammond, La.; A. Trieschmann, Chicago, Ill.; J. S. Weidman, Jr., Trout Creek, Mich.; and D. J. Winton, Minneapolis, Minn.

The Branch of Research and other Branches in the Washington office, notably Public Relations, are busier than the cook at a Church Supper. The occasion is the preparation of a report in response to a Senate resolution introduced in the last session of Congress by Senator Copeland of New York. Briefly, this resolution asks a number of questions relating to forestry in the United States and the part that the Federal Government should play financially in helping the States and other political units to embark on an enlarged forestry program. This resolution is a golden opportunity for presenting to the Senate and to the public a comprehensive forestry program for the United States. It also permits us to determine just what a real forestry program for all the forest lands in the United States will cost. Such questions are involved as the supplies and the requirements of the nation for wood products, the rate of forest depletion, the rate of forest growth, and the possibility of balancing the wood cutting budget. The public acquisition of forest lands, the rate at which abandoned farm lands are being turned into forest properties, the need for protection against fires, insects, and diseases, what land is necessary for watershed protection, game and recreation, and what is needed to encourage the States, and other public agencies and the private timberland owner are some of the other questions to be answered.

The Regional offices, the Experiment Stations, and the Forest Products Laboratory have been called upon to supply all manner of data to answer these various questions and the data have now been received in Washington. The big job ahead is to prepare the final report, which will go to Congress soon after it convenes this December. A number of field men have been called into Washington to help on this job. They are Regional Foresters Shaw and Kelley, Directors Watts, Munger, Forbes, Kotok, and Clarke-McNary Inspector Evans.

Although the report of last year to the Timber Conservation Board involved a good many men and considerable work, that was nothing as compared to the present effort, which not only uses data from the Timber Conservation Board report but also from a wide variety of studies and observations made by the Forest Service and other agencies. The report when finally printed should be another Magna Charta of forestry.

A tract of some fourteen hundred acres on the Olympic National Forest was recently set aside as a Natural Area by the Forester. This tract, to be known as the Quinault Natural Area, contains some of the finest specimens of Sitka spruce to be found in the few remaining stands of old growth in this timber type. Some of the best Sitka spruce timber obtained by the Government for airplane construction during the world war was cut from adjoining lands.

"All Aboard the Forestry Special," a playlet for children by Mrs. Francis Doud of Halsey, Nebraska, has been adapted by the Washington office for the use of those desiring a short forestry skit for the young folks clubs programs.

HOW TO CUT BLACK SPRUCE

Black spruce in the northern Lake States is widely distributed in mixture with other species, but as a type is limited chiefly to swamps. On the basis of a study of black spruce in northeastern Minnesota, it appears that the two most important characteristics of such swamps are slow growth and the presence in the stand of trees of all ages, from one-year-old seedlings to veterans of 200 years. This uneven-aged character of the black spruce stands practically insures a new forest of spruce at any time the old trees are removed. A study of old cuttings in black spruce swamps on the Superior National Forest on some 80 different sample plots showed that four-fifths of all black spruce areas examined support a reasonably good second growth regardless of how the stand was cut.

From the standpoint of securing natural reproduction of black spruce, then, it seems that either clear or partial cutting may be used in black spruce swamps. From the standpoint of continuity of production, partial cutting is more desirable, provided the remaining stand is safe against loss from windfall. Clear cutting precludes the possibility of a second cut for the next 75 or 100 years. Partial cutting, however, may provide a second cut at a comparatively short interval if the stand is protected against the wind. In such localities, partial cutting of black spruce is preferable to clear cutting.

The trees remaining in a partially-cut stand were found to increase their growth. Some 54 black spruce trees were studied 15 years after logging in this stand. More than half of these trees showed increased growth in diameter although many of them were over 100 years old when released. The rate of growth of these trees was 81 per cent greater and the average diameter growth for all trees left was 34 per cent greater during the 15 years since cutting than during the same period of time before cutting.

The general conclusion from the study is that both clear cutting and partial cutting results in abundant natural reproduction of black spruce in swamps; that in sheltered places where the danger of wind-throw is slight, partial cutting has the added advantage of providing a second cut in a comparatively short time; and that trees left after partial cutting put on a greater rate of growth. - Technical Note, Lake States For. Exp. Sta.

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On rolling land, such as that in northern Missouri and southern Iowa, as much erosion takes place in one year on cornland as in about 47 years on bluegrass pasture. - From Western Cattle Markets and News.

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CALIFORNIA STUDIES CITED IN RUSSIAN PUBLICATIONS

The Bulletin No. 7 of the Transcaucasian Experimental Research Institute of Water Economy published in Tiflis, 1931, carries a paper by I. I. Roschin, entitled "On the methods of protection from erosion and floods in Transcaucasia." In this paper our California studies on the role of forest litter on run-off and erosion are cited in detail, confirmatory to similar studies in the Transcaucasia.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

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Theodore Roosevelt

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USE OF AIRPLANES

By C. E. Rachford, Washington

Some people believe that the taking of game should be limited to those who are willing to use old-time methods of transportation. Horseback riding and packing, in the opinion of these individuals, is a necessary part of the annual hunting expedition. To these people the hunter is no sportsman unless he is skilled in horsemanship. A person so skilled usually has the ability also to match his human wits against the natural instincts and elusiveness of wild animals. To such an individual no hunting expedition is quite successful unless accomplished by the usual thrills and adventures in the use of horses and the exercise of pedal extremities. To him the exhilaration which comes from camping in a new place each night or selecting a remote and attractive base is worth the expense of the trip even if no animals are bagged. While this class of hunters may be in the minority, it is the one on which the dude rancher depends for his late fall business. Naturally, no dude rancher wants a change in methods of transportation which will interfere with his profits.

Another type of individual gets as much enjoyment out of hunting but has not the time or money to spend on a long and expensive vacation. To such an individual the kill furnishes enough exhilaration to last for the year, and the quicker the kill the better it meets his idea of sport. Heretofore a method of transportation to hunting areas suited to his needs was not available. The development of the airplane meets that need. Its proposed use in transporting hunters has created controversy.

To the dude rancher and the individual who prefers hunting on foot or by saddlehorse, introduction of the airplane spells the extermination of game. It is alleged that the mere transportation by this means is not so objectionable to them, although it is an unnecessary form of competition which established business should not be called upon to meet, but rather the ease with which game can be located from the air and the advantage this gives the hunter in showing him exactly where to go to make his kill. It is further alleged that new methods of transportation mean more hunters, more animals killed, and the decimation of our herds. These arguments will no doubt be supported by those who abhor any and all killing of game and who believe in preserving the attractiveness of wilderness conditions. To them an airplane hovering over remote and mountainous areas is anathema.

On the other hand, those who desire rapid methods of transportation declare that since taking game is lawful they should not be limited in the method of transportation; that so

long as they comply with the law, they are as much entitled to their annual kill as those who prefer other modes of conveyance. They argue further that no effort has ever been made to limit the implements used in killing and that if protection of game is the main object to be sought we should go back to the use of bow and arrow; or, if methods of transportation are to be limited, we should have prohibited the use of automobiles a long time ago.

It is certain that airplane companies will have something to say about the question, and will doubtless insist that economic law be allowed to work out the solution. While the Forest Service has no regulatory authority over wild life, except in Federal Game Refuges under its control, it nevertheless is expected to take definite action in a case where the extermination of game becomes an issue. Under these circumstances it was natural that dude ranchers should appeal to the Service to prevent the landing of airplanes in hunting areas, and especially in primitive areas. When this protest was received, the first point to be settled was the authority of the Secretary of Agriculture. In response to a request for an opinion the Solicitor, after stating Reg. L-20, replied:

"In referring to primitive methods of transportation I take it the regulation means that roads will not be constructed and that access must be by trail on horseback or afoot and that this is solely for the purpose of preserving natural conditions. This of course must be construed along with the specific provision in the Administrative Act of June 4, 1897 that

Nor shall anything herein prohibit any person from entering upon such forest reservations for all proper and lawful purposes, including that of prospecting, locating, and developing the mineral resources thereof: Provided, That such persons comply with the rules and regulations covering such forest reservations.

"I assume from your letter that those who would enter by means of airplane would have the same lawful purpose in view as those going in by horseback or afoot. This being so they of course would have as much right to enter as the others assuming that all things are equal. Of course if the exclusion of the airplane would be necessary as a means of fire-prevention or for some equally reasonable cause I think there would be no doubt as to the authority of the Secretary to prohibit its entry. Also if to enable the landing of the plane the clearing of an area would be necessary permission for the clearing could be denied and the right of entry thus defeated. If on the other hand it is possible for the plane to land in an open space without injury to the Forest I think it would be unreasonable to forbid entry and to that extent at least the regulation would be invalid. In my opinion the validity of the regulation would depend entirely upon its reasonableness and this would be determined in the light of all the surrounding facts and circumstances."

It is apparent from this decision that the Forest Service would have no authority to prevent the landing of airplanes unless damage to Forest or land would occur.

This discussion brings to the forefront the primary object of game regulation. If, as most of us now believe, the objective is to maintain the number of animals the range will support, restriction on methods of transportation is a poor way to accomplish the result desired. This being the case, it is probable that the need for regulated kill by areas will receive such emphasis and the plans now advocated be given such impetus that fish and game commissions will be forced to accept what has long been known to be the solution; i.e., a kill per area no greater than the breeding herd and range conditions justify.

TAX-REVERTED LANDS STUDIED IN ARKANSAS

In Little River County, Ark., more than 300 landowners, or about one in seven, have been unable to pay their taxes for 1929 or earlier years, and as a result 20,000 of the total 349,440 acres of land included in the county have reverted to State ownership. Last summer a group of men representing the University of Arkansas and the Forest Service examined sample areas of this tax-reverted land and classified them on both a physical and an economic basis. By analyzing the resulting data they expect to learn something about the reasons why this land has been relinquished to State ownership and something about the uses to which it is best adapted. L. M. Turner, assistant professor of forestry, and O. J. Hall, assistant professor of rural economics, are collaborating in this study with R. B. Craig, assistant forest economist of the Southern Forest Experiment Station. The university and the station have each provided one other field investigator.

Little River County borders on Texas and on Oklahoma. Woodlands compose 67 per cent of its area. Its fertile bottomlands are devoted principally to producing cotton and corn, but support some bottomland hardwood timber. The eastern half of the county consists of flat to gently sloping plains at a level from 25 to 40 feet above that of the bottoms. Here shortleaf pine, loblolly pine, and hardwoods grow in mixture, in farm woodlands and in larger blocks under corporate ownership. On the rolling uplands that form the western half of the county timber occupies a somewhat smaller area and is largely restricted to farm woodlands.

Professors Turner and Hall and Mr. Craig have classified sample areas as to topography, general physical character of the soil, and erosion. They have recorded present use of land; proportion of pasture, crop land, and timberland; timber species; quality of sites for timber production; and proportions of timberland occupied by old-growth and second-growth timber. A 5 per cent cruise has been made of lands bearing merchantable timber, which will give figures indicating volume of timber per acre, site quality, and volume growth of timber in the last 10 years. Economic data cover ownership, residency of owner, status as to delinquency, and year for which taxes are delinquent. The study includes about 37 per cent of the tax-reverted land in Little River County. For purposes of comparison it takes in some areas in the county that are tax-delinquent but have not yet reverted to the State (as of June 10, 1932, lands in this classification total 100,587 acres), and also some areas on which the taxes are paid. In addition to the classification of specific delinquent areas a study is being made of the finances of the county government over a five-year period.

Economic and agricultural conditions in Little River County are believed to be representative of those in several counties of southwestern Arkansas. In Washington County, chosen by the university as representative of the Ozark region, Professor Hall has plotted tax-reverted lands preparatory to a study similar to that in progress in Little River County.

For Arkansas as a whole, the proportion of tax-reverted land is about $4\frac{1}{2}$ or 5 per cent. This percentage is only a little above the average for the seven States Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, and Texas. The Forest Service hopes that it will be possible to duplicate the Arkansas study in each of the six other States named.

BROADCAST SEEDING

By L. A. Isaac, Pacific Northwest For. Exp. Sta.

In spite of a past history of repeated failures in America direct seeding with forest tree seeds is being tried with considerable success on the Olympic Forest. Studies under way in cooperation with the Pacific Northwest Forest Experiment Station on the Polson cut-over areas are producing some surprising results.

Sample areas on the 1928 burn seeded in January 1929 with 1.6 pounds of spruce, cedar, and hemlock in mixture now have an average stand of 2800 seedlings per acre. Parts of the same burn seeded in January 1930 with 2.24 pounds per acre now have 1900 seedlings per acre. The results of the January 1931 and 1932 seeding on the same burn were very much poorer and did not produce satisfactory restocking on most plots. However, 1931 seeding on a fresh burn at the rate of 2.4 pounds per acre now has 1800 seedlings per acre and the 1932 seeding on a fresh burn shows a much larger number. A fresh burn on moist ground seeded to red alder in January 1932 now has 13,600 seedlings to the acre and an adjoining gravel-surfaced old grade has 25,000 seedlings to the acre.

The results to date indicate that adequate restocking can be obtained in the fog belt by seeding the first or second year after burning with 1.5 to 2.5 pounds of seed per acre and using the small-seeded species.

It looks like another case of "they said it couldn't be done, and the fool, he went and did it."

HOW TO TELL THE COMPASS DIRECTIONS WITH YOUR WATCH

By S. C. Sanderson, Coeur d'Alene

If you are a boy scout, you may know how to do this; but if you do not know, you will always be glad that you have learned how to do it, for it will be useful to you all your life.

There are a number of ways of telling the direction without a compass, but most of these ways are not always practical. For example, you have probably heard that if you find moss growing on trees, it will tell you where north is. But moss does not always grow on the north side of trees, and in many woods it cannot be found on trees at all. And then again, suppose you want to know the general direction of a city street, or which way is north when you are in the middle of a field.

Now this is where your watch comes in. If you have a watch with you, wherever you are you can tell any direction with it, almost as easily as you can tell the time. This is the way to do it: Hold the watch so that the small hand (hour hand) points to the sun; then half-way between that point and twelve o'clock on the watch is south. North, of course, would be directly opposite south; and east and west would be half-way between these two points. Let us see just how this works. Suppose it is two o'clock by the watch when we wish to find the direction. We point the small hand to the sun. Then half-way between that point and twelve o'clock is south. In this case it would be right where the figure 1 is on the watch face. North would be in a line directly opposite the 1. This line would pass through the 7. West would be in line with the 3, and east in line with 10. Or, suppose it is eight o'clock in the morning. South would then be in line with the 10, north would be in line with the 4, west with the 1, and east with the 7. Of course, if it were twenty minutes past one, or ten minutes of eight, for example, it would be a little harder to estimate the directions, but after a little practice you will find that you can do it very quickly.

You may say that this way of finding the compass directions is all very well for a sunny day, but that it wouldn't work at all on a cloudy day.

Well, that is partly true; but there is a way to use this method on a cloudy day. It is apparent that if we only could tell where the sun is, we could use the watch easily enough. Now, here is a little trick that will tell you where the sun is on the cloudiest day. Stand out somewhere in an open space where there are no tall buildings or high trees near you. Then place the tip of your knife or a pen point in the center of your thumb nail. With a little practice you will notice that there is always a very faint shadow from the knife blade on one side of the nail. Now this shadow is made by the light that shines through the clouds. You cannot see this place when you look for it in the sky, but there

is always just a little more light coming through the clouds in front of the sun than from any other point in the sky, and this is enough to make the little shadow on your nail. So, you see, just as soon as you get this shadow you can point the hour hand of your watch to the place where you know the sun must be, and then you can easily find any compass direction.

AS MINNESOTA SEES CONSERVATION

(Extracts from article by John J. Biddison, of the editorial staff of the Minneapolis Journal, in American Forests for October, 1932)

Conservation, the people of Minnesota have discovered, pays dividends. Next to the depression and taxes, in the public mind comes the preservation of natural resources. In fact all three are linked together, for conservation means tourists and pleasure seekers from outside Minnesota borders, and tourists help to pay taxes and to buck the depression. Tourists forced the issue.

Conservation was a warcry even before taxes became a burden or hard times a stark fact. The North Star State took notice that all its natural resources come out of the same pot - that forest and lake and stream are mutually dependent on each other; that birds and fish, game animals and fur-bearers, lumbering and paper mills and many other forest industries are part and parcel of them; that water power is derived directly from them, and that even the vast mineral wealth of the commonwealth for the most part underlies them.

Minnesota once was four-fifths forest. Today two-fifths of the State is so classified. Once these forests teemed with game and their streams and lakes with fish. Today there is much less wild life - and yet Minnesota is still a sportsman's paradise. Nothing short of a cataclysm can deprive it of its boasted ten thousand lakes; and in its wooded fastnesses are still to be found many thousands of deer, a fair number of bear, a few moose and a multitude of smaller game. Fish and water birds still abound. The iron mines are still producing the fill for great fleets that ride the Great Lakes to the smelting mills.

All this Minnesota has set about in one concerted operation to protect, perpetuate and increase. *****

Drainage has created in Minnesota an extremely acute situation. Its history is a long story. Briefly told, many thousands of common folk bought swamp lands from the State, expecting the State to drain them, and then found they would have to do it themselves. Counties therefore set up drainage districts by petition of the owners, issued bonds, had the work done and levied assessments to cover the indebtedness. Hard year after hard year came, the settlers couldn't pay, and six counties found themselves on the verge of bankruptcy because they could not meet the bond payments. They appealed to the State for aid. The State responded with large appropriations to take tax titles to the forfeited lands. The result is the vast acreage now falling into the lap of the Department of Conservation. ***

Another of the problems lately forced upon the State of Minnesota is that of water levels. The same drainage activity that brought bond issues and tax defaults lowered the levels of certain northern lakes, reduced the water fowl breeding grounds and brought complaints from sportsmen that their happy hunting grounds were being destroyed. Offsetting this was the demonstrated fact that drainage improved conditions for growing of timber.

On the other hand, while some lakes were being lowered by drainage, others were being excessively raised or threatened with overflows through water power damming operations, causing destruction of forests and forest life in the flooded areas while at the same time they lowered the levels of streams farther down, to the destruction of fish. Some action is looked for from the legislature to take arbitrary jurisdiction over water levels.

YE EDITOR DISCOVERS

"Steps are now being taken," says a recent Canadian Pacific Railway bulletin, "toward placing the Canadian forests on a sustained-yield basis. It is now profitable as a commercial investment to plant trees in Canada under conditions which are steadily becoming more favorable, though the full benefit of intensive management will take time to appear. *** The total area covered by existing forests in Canada has been estimated at 1,151,454 square miles, of which about 82,260 square miles is land which if cleared would be suitable for agriculture. Under the most economic arrangement about 52,000 square miles of this last area would be cleared and devoted to field crops and pasturage and the remaining 30,000 square miles would be, and no doubt will be, left under forest in the form of farmers' wood lot. This leaves an area of about 1,100,000 square miles of land which could be utilized to the best advantage under forest. Of the total area under forest at the present time, amounting to 1,151,454 square miles, and including the 82,260 square miles of agricultural land, about 200,000 square miles carries mature merchantable timber, 111,234 square miles carries immature but nevertheless merchantable timber and 554,646 square miles carries young growth which, if protected from fire and other damage, will eventually produce merchantable timber. All this area is so situated as to be commercially exploitable at present. The remaining 285,574 square miles is considered as inaccessible or unprofitable to operate under present conditions."

On September 13, for the first time, a bid covering consolidated purchases was opened by the Department. The bid covered 368 cars and trucks, of which 159 were for the Forest Service. Acceptance has now been made for the majority of the items. Major Engelmann of the Bureau of Public Roads, who handled the issuance of the bids for the Department, has estimated that a saving of approximately \$30,000 was made over prices that would possibly have been obtained had each Bureau purchased its own cars and trucks. A call will shortly be made for requisitions for the next consolidated purchase of cars and trucks by the Department.

Construction work on the new Department of Agriculture extensible building is progressing rapidly. Two wings were finished last spring, leaving five still to be built. Some of these must be completed by June 1933, but the contractor has until June 1934 to complete the others. At the present rate of progress, however, it is expected that they will be ready for occupancy sometime before the contract date. Although the Forest Service will probably not go into any of the wings completed in 1933, moving day at the Atlantic Building may not be so very far away.

A recent survey of forty cities in all parts of the United States, made by the Fidelity-Phoenix Fire Insurance Company, shows that 68 per cent of the buildings are of frame structure. Among the cities tabulated Galveston, Texas, with 98 per cent of its buildings in the frame classification, was listed as having the highest ratio, with 15,200 frame buildings out of 15,497. Long Beach, Calif., was second, with 97 per cent; Bellingham, Wash., third, with 96 per cent.

Hearings on appropriations for the fiscal year 1934 will be held before the Agricultural Sub-Committee of the House Committee on Appropriations beginning November 15.

In a recent study by the Southern Forest Experiment Station of conditions in the upland hardwood type, it was found that of some two million acres nearly three hundred

and fifty thousand acres were either abandoned or in process of abandonment and that on half of this area erosion is of a very severe type. It is quite probable that such land has been permanently taken out of agriculture and that it will become forest land. The Southern Station points to the great need for forestry on such lands if they are to do their part in stopping this erosion which is putting annually into the Mississippi many thousand cubic yards of soil.

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Since our recent announcement of the confusion that the Copeland report has aroused in the Washington Office, additional field men have arrived on the scene to assist in the preparation of this big undertaking. These include E. H. Frothingham of the Appalachian Forest Experiment Station, L. F. Kellogg of the Central States Forest Experiment Station, C. R. Tillotson, District Inspector for the Northeastern States, H. J. Eberly, District Inspector for the Gulf States, J. H. Stone of the Nantahala Forest, Robert Marshall, formerly of the Northern Rocky Mountain Forest Experiment Station, and I. F. Eldredge, Director of the Forest Survey in the South.

GRATIFYING PROGRESS

"While the use of our national forests has not decreased from a year ago, the United States Forest Service makes the gratifying report that fires have been about 15 per cent less, for the first half of the year. The cost of fighting fires was \$300,000 in 1931 and \$135,000 now, with 146 preserves being protected.

"Various reasons exist for this improved condition. Fire fighting equipment is being made more effective constantly. Detection of blazes is more prompt, enabling speedy action. Experience in the past has proved valuable.

"And far from least has been highway improvement, making it possible in many cases to reach the scene of the fire in far less time than it formerly took.

"Reports also indicate that citizens are cooperating more ably and willingly with the department in its war on the greatest menace to our forests. They are not so careless with fires, matches, and other things that often have caused devastating blazes. And they are more ready to help when that is needed, or to notify rangers if they detect a fire.

"These national forests have a single object - to afford recreation centers for the people. They belong to the citizens, and the latter use them with the implied obligation of observing the rights of others; which consists in preserving them intact.

"That their use is increasing, while the yearly damage done grows less, is indeed encouraging". - From the Gazette, Schenectady, N. Y.

ANNUAL ROLL CALL - AMERICAN RED CROSS

The annual membership roll call of the American Red Cross will take place during the period from November 11 to 26. The facilities of this splendid organization are being utilized to relieve distress throughout the country on a scale never previously attempted.

To continue this work and to provide for the regular activities of disaster relief, assistance to service men and veterans, public health nursing, etc., requires the support of all our people. The employees of the Department of Agriculture have always responded generously to such appeals and I urge them to give increased support to this most urgent plea.

(Signed) Arthur M. Hyde,

Secretary.

LUMBER - ARIZONA'S SECOND INDUSTRY

The lumber and timber products industry ranks second in Arizona in number of wage-earners and amount of wages paid, being exceeded only by copper smelting. Of all the wage-earners in the State engaged in manufacturing industries, 2,084, or 20 per cent, are employed in the sawmills and logging operations, and \$2,268,088, or 15 per cent, of all wages paid in the State in manufacturing establishments, is paid by the lumber industry. In value of products, the lumber industry is third in Arizona, copper smelting and meat packing showing higher totals. One-half of the lumber shipped by rail by Arizona sawmills is distributed in the home State or goes into New Mexico, the proportion being about 43 per cent for Arizona and 7 per cent for New Mexico. In the latest year of record Arizona sent approximately 18 per cent of its lumber to Missouri and Kansas; 9 per cent to Illinois; 8 per cent to New York and Pennsylvania, and 5 per cent to Texas. Box and crate manufacture is the principal wood-using industry of the State. - R - 3 Bulletin.

SEED BRIQUETTES

Planting forests by the brick instead of the tree is a new method of forestry developed in Norway, according to Professor Svend Heiberg, of the Department of Silviculture of the New York State College of Forestry at Syracuse, who recently returned from Europe where he had been studying reforestation methods under a scholarship of the Charles Lathrop Pack Forestry Trust. The seed bricks, or briquettes, Professor Heiberg states, are made of good soil and are $1\frac{1}{2}$ by $1\frac{1}{2}$ inches in size. Three or four seeds are placed in one end near the surface. The briquette is then dipped in paraffin except the side in which the seeds have been placed. The result is an easily transported product, which can be placed in the ground by means of a special instrument designed for this purpose. A machine can turn out 16,000 of the briquettes in a day. Professor Heiberg suggests that the idle lands of the United States may be reforested by planting briquettes instead of trees. He states: "... In the reforestation of comparatively clear fields the briquette system will do away with tree nurseries. It has other important advantages. It permits the root system to develop normally and also avoids disturbance of the roots at the time of planting. It also makes possible reforestation work at almost any season of the year. It is only necessary to place the briquettes in the ground and let nature do the rest." - Science.

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Blowing and rolling weeds present a difficult problem in the growing of shelter belts in some parts of the Northwest, especially North Dakota, says the Department's field station at Mandan. In some instances the weeds - Russian thistle ("tumbleweed"), etc. - blow into shelter belts and clog the spaces between the trees to such an extent that they are a fire hazard, and when they catch and hold blowing soil against the trees they cause damage to the trees. - The Official Record.



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES. WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER

Theodore Roosevelt

Vol XVI No. 38

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REPORT OF THE "VILGIANTE VOLUNTEERS" AS ORGANIZED AND OPERATED IN REGION 1 DURING 1932

By R. F. Hammatt, R. 1.

In 1931 Jim Templer, then Assistant Supervisor on the Deerlodge, became convinced that it would be worth while to secure appointment of influential citizens as Volunteer State Fire Wardens.

Contrary to most opinion within the Service, Templer did not have in mind that these volunteers would function primarily in fire suppression. It is, I think, a fair statement to say that suppression work by the Volunteers was a minor and a negligible possibility in his mind. He had, as near as I can put it in words, three major objectives in mind. They were:

1. To acquaint influential citizens with Service problems and policies - protection being but one such problem - in order to get and hold their interest and support.
2. To prevent man-caused fires, before they start, among these influential citizens (some of whom might be careless or indifferent or both) themselves.
3. To mould and focus opinion, through these Volunteers, among the public generally.

Templer put his idea into execution, on the Deerlodge, in 1931. With cooperation from the State Forester some 60 Volunteer Wardens were appointed. Results were such that Templer's original plan, - to make the organization Region-wide, - received in 1932 the encouragement and support it deserved. Enthusiastic support of it was accorded by State Forester Rutledge Parker, who prepared and printed a special digest of State and other laws and regulations, new appointment cards, etc. Cooperation was secured from State Forester Ben Bush. To stimulate interest and enthusiasm, Governors Ross and Erickson consented to accept appointments. Supervisors recommended some 3,000 men (and an occasional woman) for appointment. Planned publicity was obtained through the Associated Press and local papers, from the Regional office and from Supervisors' offices. National publicity came through a special article in the American Forests, which was later summarized in the Readers Digest, and through the Forester, who persuaded the Secretary of Agriculture to publicly present an appointment to Congressman Scott Leavitt in Washington. This stunt was good for newspaper publicity and for a movie (talkie) released from Washington.

Most Volunteers were personally contacted before appointment. Every appointment card was accompanied by an individual letter signed by the Supervisor. Early in October an individually addressed letter of appreciation, signed by the Supervisors, goes to each Volunteer.

The objectives in 1932 were identical with those of 1931. Fire suppression was a minor one.

Mention should be made of the fact that Volunteer Wardens played a vital part in one of the most spectacular, far-reaching and successful (fire) law-enforcement cases in R-1 during 1932. It is unfortunate - from the standpoint of giving emphasis to the value of the Volunteer organization in law-enforcement - that common prudence prohibits revelation of details at this time.

Every Supervisor in R-1 definitely wants the organization continued in 1933. A few believe it should be continued because further trial may demonstrate its worth; most Supervisors believe that its worth has been demonstrated and are already enthusiastic. I am quoting below some of their comments.

"The psychological effect on public opinion, the widespread publicity given the number and authority of the Volunteer Wardens, and the increased interest in National Forest affairs by representative and influential citizens, have been beneficial. The absence of incendiary fires on the Helena Forest during the past fire season as contrasted to the 1931 record, may be taken as indicative of what may be expected as a result of fire law enforcement and the efforts of interested citizens in preventive matters." - Templer, Helena.

"I do know that in discussing the proposition with the various wardens who have been appointed it brought home to them the need for greater care themselves and several made the statement that it would be very unfortunate if a volunteer fire warden should be arrested for leaving a camp fire. A few men seem to sense the responsibility of the appointment quite keenly and no doubt would be somewhat inclined to stop and 'preach the gospel' to tourists." - Phillips, Nezperce.

"This vigilante organization helped because men appointed in this locality were those who went into the woods for fishing or business purposes. They traveled here, there and everywhere, generally unannounced. People knew of the existence of the Volunteer Wardens but our policy was to give no publicity to their names. We believe this to be the desirable procedure. From time to time throughout the season we received statements like this, 'You cannot tell when and where you will run into one of these Volunteer Fire Wardens and you don't know who they are.'

"Several rumors have come to us that certain of these vigilantes instructed others in being careful with their camp fires and to thoroughly extinguish them. One volunteer informed me that he picked up two hitch-hikers between Coeur d'Alene and St. Maries who thoughtlessly threw a cigarette out of the car. He immediately stopped, backed his car to the point where the cigarette had been thrown and insisted that the individual get out and extinguish the cigarette, after which, he gave the two young men a good lecture. On the same trip, this man saw a fire burning unattended near a ranch. He stopped his car, went to the ranch house and asked the rancher if the fire was on his property. The rancher stated that it was and he had set it but was taking care of it. He then desired to know who the vigilante was and when informed that he was a Deputy Fire Warden, he stated that he would put the fire out." - Wohlen, St. Joe.

"This year the Blackfeet had the same number of fires as in 1931, but the man-caused were reduced from 12 to 4. No incendiary fires this year, but in 1931 most of our suppression costs were on several incendiary fires. There was a lot of discussion about the organization and it undoubtedly made people more careful about fires." - Nagel, Blackfeet.

"Three Volunteer Fire Wardens performed services of known value during the present fire season. One of the volunteers discovered a fire within the Forest Boundary. He rowed a boat one mile across a lake and put the fire out before reporting it. He received no pay for his services. Another submitted the first report on a fire within the Forest and a resident volunteer went to a fire on his own initiative. He was the first man to arrive on

the fire. These three cases, I believe, merit individual letters from the Supervisor.

"We know other Volunteer Wardens have helped to some extent at least, by cautioning tourists and campers. There has been no adverse reaction encountered and it is felt that the practice should be continued. Those selected are the pick of the community and an expression that they will be with us again next year is recommended." - Ryan, Kaniksu.

"The volunteer warden idea is high-class, arousing general interest and directing public attention to the urgent necessity of materially reducing the destruction of forest resources by man-caused fires. Leaders in the various communities are now definitely aligned with governmental agencies in the drive to reduce fires of this source. No longer do these leading citizens say, 'They should do something about it,' but instead, 'We must face this problem squarely and solve it.' These wardens not only have a far-reaching influence over the acts and trend of thought of others in the community, but having accepted the position of leadership in the work of educating the rank and file of forest users in the art of good woodsmanship they hasten to bring their own practices to a point commensurate with the responsibility they have assumed. I believe the organization should be continued and even expanded some next season. I have found it desirable to make recommendations for appointment not only of persons whom I personally know to be qualified for the position, but also to extend the privilege of nominating others by those whom I have selected, provided that the person making the nomination will vouch that the recommended appointee possesses in outstanding measure the following personal characteristics: good judgement, business integrity, broad general knowledge, tact, tolerance, initiative, friendliness, woodsmanship, leadership, and willingness to contribute public service to a worthy cause." - Martin, Absaroka.

A GOOD NAME!

By E. N. Munns, Washington

A good name may be desired above great riches. One would gather however that this fact has been neglected when various subdivisions of the National Forests have been named. Possibly, however, the natural richness of the guard or ranger district was so great that the matter of a distinctive name did not greatly matter. Hence a valuable forest, beautiful mountains and lakes, wonderful resources of all kinds are buried in localities known as the Mill Creek Ranger District, the Cow Creek District, and others are called Alder Creek, Cold Creek, South Fork, North Fork - but supply your own name. To me such names are as lacking in distinction as an old shoe and not at all descriptive, attractive, or in keeping.

Some names are truly descriptive. Take Dry Wolf Combination Ranger District. That's a real name. Then there is Johns Valley and if you don't like Johns, you can go to Joe's Valley. It is hoped that the Burns Ranger District has something besides burns, that the Ranger at Greenhorn will not always be such, and that the Ranger at Desolation has not given up hope. Perhaps he has devastated land to care for, hence the name. But now when one looks for Paradise or Grandfather, that's different, and how!

Consistency? Where is it? The Dixie Ranger District is in Idaho, the Dixie Forest in Utah, but to Democrats and Republicans alike it would seem that they should lie in the Southeast. Then we have the Rio Grande District in R-3 and the Rio Grande Forest in R-2, and the bulk of the River in R-7. We have a Salmon District on a Salmon Forest; sounds fishy, but true. We have a Siskiyou District in R-5 and a Siskiyou Forest in R-6. Then, so there shall be no hard feelings, we have a Klamath District in R-6 and a Klamath Forest in R-5. And so on. All of which proves that our names are just as consistent as we are as people, and I presume that foresters are people. But, can't we do a little better?

I knew a Ranger on the Stanislaus, Bud Lewis. Bud was an old timer who went through the early organization period of the Service and his varied experiences were used by Stuart

Edward White in his book "The Rules of the Game." Bud went through some hectic times in those early days but always he retained his sense of humor and he never forgot his principles. Bud is gone now, but he left a splendid record behind him. Could anything be a finer tribute than a "Bud Lewis Ranger Station? Yet the cabin he built and his first station goes by the name of Cow Creek.

There are other Bud Lewises. There are those who have been good public servants. They may not have done heroic deeds, they may not have written technical bulletins, but they did serve the public faithfully, loyally, and well. Some there are who still are members of the Service yet who are facing the dreary prospect of a ruthless retirement. Such co-workers have done much for us, but have we done as well by them? Do we not owe to many of them a debt that it will soon be too late to pay? As a parting gift could we not name after them some district that they once served so well? Or perhaps it was a nursery, a road, a trail, or lookout or a bridge in which they were interested. Can we honorably do less than to perpetuate the memory of their services?

(To be continued in December 5 issue)

"PR" OPPORTUNITIES AT FIRE LOOKOUTS

By Ray Adolphson, Fire Lookout, Black Hills National Forest

The popular impression that Fire Lookout Stations are isolated, only frequented at irregular intervals by "packer" or Ranger, is more of a fallacy each year. The lonely vigil of the Lookout is fast disappearing. At least this fact is true of the Cement Ridge Lookout on the Black Hills National Forest in Wyoming where 530 names were added to the visitors register during the 1932 fire season.

An auto road, built within the past three years, leads the exploring tourist to Cement Ridge, from which point he may secure a new impression of the forests below. A growing consciousness, by the public, of the scenic advantages obtained from lookout stations is rapidly increasing. These visits are of mutual advantage to visitors and Lookout. They provide an inspiring, panoramic view for the one; for the other, a fine opportunity of promoting the interests of the Service.

It is surprising what little the average visitor knows about the Service and its operations; how distorted are some of his beliefs. From my experience at Cement Ridge I have found the most of my visitors possessing a genuine interest in learning what the Service is and what it does. Too, the Lookout's effectiveness in dispersing information is strengthened, in large measure, by the cooperation of the District Ranger and the Supervisor. It is probable that many of those lookouts which are frequented with visitors are passing by the splendid opportunity of bringing the users of our Federal Forests closer to an understanding of the Service and, the object we desire most, intelligent cooperation.

Since 1927 the number of visitors to Cement Ridge has increased nearly six-fold. This fact certainly contributes emphasis upon the opportunity of public relations work and also indicates greater possibilities for the future. Reasons for stressing these connections at lookout stations are manifold and more or less self evident. An excellent example is a burn which occurred during the summer of 1931. Although this burn is three miles from the station it is very prominently seen. Many of my visitors have called attention to this scarred section of forest. Thus it has been possible for me to illustrate most forceably the necessity of preventing destructive fires. A very definite impression can be made, not only as in the above illustration, but also with other phases of Service activities.

Along with the personal contact a lookout may make with his visitors, we must also

consider the distribution of printed matter as of importance. Publications supplied the Lookout are frequently antiquated and do not adequately illustrate present Service operations. Many of the visitors this year seemed to have possessed a mania for securing the latest of information. Possibly this situation may have been due to the fact that most of the inquiries came from visiting students and teachers from high schools and colleges of over twenty States. This statement is of special significance when one considers the far-reaching influence a Lookout frequently maintains through his public guests.

It is evident that the Lookout's value to the Service and to the public will increase materially as each year the possibilities of "PR" work are developed. Needless to say I have found my experiences in introducing the Service and its work to my visitors unusually interesting.

AN EDITORS THANKSGIVING LAMENT

(WITH APOLOGIES TO FRANÇOIS VILLON)

Where are the Scribes of yesterday
Who cheered with a laugh or blustered wise
Who sang of sylvan beauties. Say!
Where are they now? Your scribbler sighs.

Gone as the rustling leaves that play.
The wynds have blown them all away.

And the season is here when praises rise
For the joys that have gone and joys ahead
And the empty file in its silence cries
For the scripts of yore, that were raptly read.

Where are they now - those pages gay?
But where are the snows of yesterday?

You will miss them: Scribes of the trenchant pen
And their Bulletin squibs of yesteryear
We in their stead must wish you then
A happy day, and the Season's cheer

For the Scribes are gone - we chant our lay -
Gone, as the snows of yesterday.

From a R - 2 Bulletin of long, long, ago.

THE DEMOLAY FOREST IS DEDICATED

By George A. Bright, Columbia Forest

The third day of the eighth annual Washington State Conclave of the Order of DeMolay was held on September 3 at the Little Soda Camp on this Forest. The primary purpose was to dedicate the plantation of 263 acres which the young men of this organization have made possible through their annual donations during the past six years.

The grove of large trees at Little Soda Springs was a particularly appropriate spot for this dedication. The weather was perfect and the three or four hundred DeMolay boys and their guests thoroughly enjoyed the occasion. The DeMolay boys are to be congratulated on the smooth and business-like manner in which they ran the whole affair.

State Master Councilor, Eugene Crumb, introduced the speakers who were numerous but appropriately brief and to the point. Telegrams of approbation were read from President Hoover, Charles Lathrop Pack, and others. The Invocation was given by Ernest Rockway, State Chaplain. Brief addresses were given by William S. McCrea, Grand Council member in Washington, Kenneth Smith, State Reforestation Chairman, and by the following members of the Forest Service: Ames, Guthrie, Kummel, and Bruckart.

There were reporters present representing various newspapers and pictures were taken many times of anybody who ever had had anything to do with the establishment of the DeMolay forest within remote control or direct action. The pictures were both movie and plain garden variety.

After the dedication of a tree representing the DeMolay Forest, a box lunch was provided by the Vancouver Chapter.

After this very ample lunch and the generous exchange of compliments between the speakers representing the DeMolays and the Forest Service, I am sure everyone must have gone home happy unless he were a rank pessimist.

YE EDITOR DISCOVERS

As indicated in a previous issue of the Bulletin, the question of the degree to which airplanes should be allowed to land within the National Forests, particularly within Primitive Areas, is now a matter of urgent interest and importance. The Forester by letter of October 28 has set forth the position of the Forest Service in this matter. Portions of his letter follow:

"As a generalization, it may be said that the social and economic potentialities of air transportation are so great that its encouragement and development is dictated by all considerations of public interest and policy. No policy of exclusion or restriction of air travel in the National Forests could be justified or maintained unless unquestionably supported by preponderant considerations of public welfare. The benefits and values of air transportation in relation to the protection and management of the National Forests are evident and numerous and all of the traditions of the Forest Service dictate constructive and sympathetic recognition of its requirements in the management of the National Forest lands. ***

"In the light of present circumstances the policy of the Forest Service may be stated as follows:

"There will be no differentiation, either favorable or unfavorable, between the airplane and other forms of mechanical transportation. Within parts of the National Forests which are now or ultimately will be opened to automotive transportation through road construction, or for which airplane transportation is preferable to the expensive road construction that otherwise would be necessary, every use of national-forest land essential to the safe and efficient operation of airplanes will be encouraged either by issuance of the necessary special-use permits or by authorized use of public facilities. But within parts of the National Forests, such as Primitive Areas, where the adequate preservation of public values necessitates the administrative restriction or complete prohibition of other forms of automotive transportation, the policy of the Forest Service will be to similarly restrict or prohibit the use of airplanes for transportation, hunting, etc. Under present legal limitations such restrictions or prohibition can go no further than the denial of

permission to construct and operate landing fields within such areas or of permission to use Forest Service landing fields, and dependence must be placed upon the support of public sentiment and the cooperation of the aviation interests to enforce the policy. If, however, the situation demands more specific action, the Forest Service will urge the enactment by Congress of additional legislative authority to control the use of airplanes within areas where such use would be adverse to the best public service and management of national-forest lands or otherwise against the highest public interest."

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A. G. Simson, who is in immediate charge of the All-Service Radio Project, with headquarters at Portland, Oregon, is in Washington conferring with officials of the Bureau of Standards, technicians of the Naval Radio Laboratory, and Signal Corps officials of the Army. Simson accompanied Bureau of Standards officials in one of their planes on some test flights, during which a SP-Set was kept in touch with the ground stations. The set provided communication over distances that a plane ordinarily would be from a fire camp while reconnoitering a fire, indicating its possibility as a means of maintaining contact between the observer in the air and the fire fighting forces on the ground. The Bureau of Standards, the U. S. Army, and the U. S. Navy are very much interested in these sets and have signified the probability of purchasing some of them for various uses. Simson is also arranging, through the Department, to attain an assignment of a greater number of radio channels for Forest Service work.

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L. H. Reineke of the Northwestern Forest Experiment Station has recently devised a new piece of equipment which should be of help in determining the age of trees. This consists of a hinged block which holds an increment core firmly in place while permitting both exposed sides to be smoothed off with a knife. The increment core can then be held up to the light and the annual rings readily determined. Those who have used the device say that it is a big improvement over staining methods because it is not always easy or feasible to obtain sharp definition in this manner. This is true especially in some species where the differentiation between spring and summer wood is slight.

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In an effort to help create local public sentiment for reduction in number of man-caused fires, many of the Montana Forests this year placed before Service Clubs, in hotel lobbies, and on restaurant walls a so-called "barometer," recording, by ten day periods, the increase in the number of smokers and campers fires in the National Forests.

Personal observations and casual reports from some of the Supervisors indicate that this:

1. Created interest and thought at Service Clubs where it was properly introduced.
 2. Resulted in sustained interest before Clubs where the barometer was kept currently up to date.
 3. Provoked worth-while comment and discussion outside Service Clubs, and in restaurants and hotel lobbies in several localities.
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Contract has been let for the construction of the buildings on Government Island, Alameda, California, that are to be occupied by the Forest Service supply depot. Since the contract specifies that these buildings are to be furnished by the end of next March, Haynie and his organization will presumably be established in their new quarters before July 1.

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By Executive Order of October 20 the President added to the Yellowstone National Park 7,600 acres of land previously a part of the Gallatin National Forest. This addition was authorized by the act of several years ago which placed within the Absaroka and Gallatin National Forests the previously open strip along the Yellowstone River. The addition includes an important part of the winter range of the Yellowstone game and particularly some ranches acquired for game protection purposes.

"TENDERFEET" WITH REVERSE ENGLISH

By John B. Taylor, R. 1

Stories of dudes, pilgrims, and tenderfeet have furnished us roughnecks with many a laugh. We have all chortled gleefully over the chap who puts the saddle on backward because he was returning instead of going; and we have been known to choke over the pilgrims' mistaken ideas about steam niggers and road monkeys.

But if you want to see a real tenderfoot just watch the average hardy woodsman sidle warily up to the off side of a typewriter, "rattle" the carbon paper into a letter of transmittal, get it in backward, and try to type it. Most Supervisors, sooner or later, decide to get "efficient" and inspect the rangers' offices. That doesn't bother the experienced Ranger at all. He just asks the Supervisor a few innocent questions about finance procedure or filing. The Supervisor then beats a hasty retreat, just like a dude retiring from too close proximity to a snaky pack mule.

I have found the same procedure works well with over-inquisitive R.O. Inspectors.

Tenderfeet all of us when we get into the office. We need to practice laughing out of the other side of our mouths --

Rangers alone devote about \$100,000 worth of time to "paper work" each year. How much more is done by other competent woodsmen no one knows. It looks as though it might be worth our while to give some thought to acquiring proficiency in that end of the job. There is no need for a tenderfoot to remain that way.

I wonder how much efficiency we would get if we devoted \$100,000 worth of our clerks' time to lookout tower construction; or to building telephone lines. At that, I'll bet they would beat the efforts of some of us office tenderfeet at mastering the finesse of handling office work.

For twenty-seven years and six months, the Service has talked about freeing the field men from paper work. Results, negative and then some. Perhaps a little time devoted to mastering the not too difficult technique of office procedure might prove the solution of the problem. Some one page our "training engineer." - R. 1 Bulletin



SERVICE BULLETIN

CONTENTS CONFIDENTIAL

WE ARE COMING TO RECOGNIZE AS NEVER BEFORE THE RIGHT OF THE NATION TO GUARD ITS OWN FUTURE IN THE ESSENTIAL MATTER OF NATURAL RESOURCES. IN THE PAST WE HAVE ADMITTED THE RIGHT OF THE INDIVIDUAL TO INJURE THE FUTURE OF THE REPUBLIC FOR ITS OWN PRESENT PROFIT ***THE TIME HAS COME FOR A CHANGE. AS A PEOPLE WE HAVE THE RIGHT AND THE DUTY *** TO PROTECT OURSELVES AND OUR CHILDREN AGAINST THE WASTEFUL DEVELOPMENT OF OUR NATIONAL RESOURCES, WHETHER THAT WASTE IS CAUSED BY THE ACTUAL DESTRUCTION OF SUCH RESOURCES OR BY MAKING THEM IMPOSSIBLE OF DEVELOPMENT HEREFTER

Theodore Roosevelt

Vol. XVI No. 39

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UNEMPLOYMENT RELIEF IN THE LAKE STATES

From Region 9 Service Meeting Report

The paramount principle underlying the present relief program within the National Forests in the Lake States is to ameliorate the distressful conditions among the unemployed through the initiation of a job relief program on needed and planned improvements. The work will be carried on, so far as practicable, during the winter months or period of greatest suffering and distress. In the furtherance of this dominant principle plans are being made to adequately house, feed, and provide gainful work to the maximum number of men possible with the funds available for approved classes of improvement work.

It is felt that the maximum relief may be rendered through the establishment of emergency construction camps, wherein the men may be housed and fed in relatively close proximity to the work. A small monthly wage, barely sufficient to meet the current individual needs of the employee, is also favored.

The nature and extent of the work will, of course, govern the number and size of the camps required to carry out the job relief program on each Forest with the funds available. Existing logging or other headquarters camps will be used if at all practicable to do so. Expenditures for the erection of new camps, or any diversion of the funds other than for food and wages to the men will be held to a minimum. It is doubtful if camp quarters can be found that will be suitably located and of sufficient size to accommodate crews in excess of 50 men. Such determining factors as camp facilities, accessibility during winter months, volume of work at hand, etc., will naturally govern, and it is not expected that 50-man crews, or crews of even half that number, will be justified in every case. As a means of further expanding the work in localities where camps are not required, or, in other words, where employees may reside at home and be hauled to and from work, this plan will be adopted. By this method, it should be possible to work out many small jobs which will be out of reach of the camps, or which are not of sufficient importance to justify the installation of a camp. Occasionally a large job may be handled by commuters, but accessibility during the winter will prove a factor in deciding which projects may be worked out to advantage in this manner.

The job relief work outlined under this program should greatly relieve the local political units and other welfare agencies of some of their burdens in meeting this problem. Close cooperation with these agencies in the furtherance of this work is contemplated. As a general policy, all common laborers employed on winter relief work by the Forest Service will be selected from the County Poor Commission lists. This will relieve the County organizations.

from furnishing aid to the men so employed during the period of operations. The Poor Commission, or other outdoor relief agencies, will be called upon to supply these men with suitable clothing for winter work until such time as they have earned sufficient money to supply their own needs. The terms of hire may possibly eliminate family men or men having other dependents. This means that the crews will be made up in large part of the less orderly, homeless, or floating type of worker, similar in every respect to the class of men found in the logging camps and to some extent in the mining camps.

County Road Commissions will also be called upon to furnish trucks for the transportation of men to and from work, and possibly in hauling supplies; to keep all roads used in connection with this work open for travel, in so far as it is reasonably practicable to do so; to furnish stoves, mess equipment and any other camp equipment or hand tools which they may have available, and free medical attention by local county physicians, together with any other assistance they may render that would further spread the Government funds for expenditure on purely relief measures.

It is not possible to fix a date for the initiation of this work, but all arrangements will be made to organize and get the work under way immediately after the close of the field season and not later than December 1.

All employees are to be hired at a monthly rate of pay. The monthly rates will uniformly be in accordance with the rates listed below for each class of work involved. The rates given are net to commuters (subsistence not furnished by the Government) and are subject to a deduction of \$15 per month for employees furnished Government subsistence (subsisted in emergency construction camps).

Laborers	\$30 per mo.	Cook - 20 man crew or less..	\$45 per mo.
Cooke	30 " "	Cook - 20 to 50-man crews.....	65 per mo.
Strawboss.....	45 " "	Time keepers	65 per mo.
Truck Drivers....	45 " "	Camp foreman	100 per mo.

Employment will be limited to 30 hours per week in conformity with Sec. 307 of the Relief Act. Five hours on the job, exclusive of time going to and from work will constitute a day's work.

The Emergency Construction camps will be carefully managed on a relief basis. It will be the policy to feed the men well but to confine the provision list to purely camp type feeds, of a quality similar to that furnished by the outdoor relief departments. This will include the usual varieties of all winter vegetables, bulk coffee, macaroni, dried fruits, cow meat, beans and similar items, but not canned goods or other high grade provisions. Every effort will be made to keep purchases for equipment at a minimum. Plans will be made to use all available equipment now on hand and that which may be furnished by cooperating agencies before placing any orders for new purchases of equipment. This statement applies equally to mess, camp, and construction equipment. Use will be made of fire equipment after the close of the fire season. The road and planting equipment will also be available for this work.

RELATION OF FIRES TO WATER CONSERVATION IN LOS ANGELES COUNTY

An Address by E. C. Eaton, Chief Engineer, Los Angeles County Flood Control District

Fires and their bearing on water conservation have such a close relationship in our mountain drainage areas that it is of the utmost importance that all possible means be

taken towards their complete control. The relationship is of such importance that the absence of fire denotes the increase of water conservation while the occurrence of fire practically eliminates such conservation. There are two possible means of water conservation; that provided by nature, and that provided by man and both are seriously affected by fires.

In the State of California nature has prodigally given cover to the majority of the mountainous areas, either in the way of tree growth such as occurs in the northern parts of the State, or in chaparral growth which covers the mountain ranges of the southern counties. However, man has caused the depletion of this original heritage through destructive logging methods and carelessness in the matter of fires and their control, so that today we are faced with a problem that faced China many hundreds of years ago, and one that, if met with no more of a correcting policy than the Chinese used, will result, in time, in a situation very similar to that country's at the present time -- a high mountainous back country devoid of cover, creating at intervals floods of great destructiveness to the populous plains areas, accompanied by sterility of eroded slopes and debris-covered valleys.

That mountain vegetation, whether of an herbaceous nature such as covers grazing areas, brush cover such as grows so densely over the Sierra Madre Mountains, or heavy tree growth such as occurs on the western slopes of the Sierra Nevada Mountains, acts as the most efficient and effective means of water control and conservation, is a fact that has been established beyond question.

Man's works of conservation, such as dams and spreading grounds are supplementary to nature's methods of conservation, and from the standpoint of economics are dependent upon the efficient functioning of natural conservation through mountain vegetation.

Where artificial works can only be placed in stream channels, and control can be obtained equal only to the capacity of such works, the natural cover of vegetation applies those same principles of retardation, storage and percolation to the entire area that artificial works afford to a limited extent.

The action of vegetation in these respects is accomplished by the following means:

1. The rain falling on vegetation loses its impact before reaching the soil, and thus reduces erosion.
2. A certain amount of the rain itself is intercepted by the vegetation before it reaches the ground which reduces both erosion and run-off.
3. The root systems absorb a portion of the moisture in the soil before a rain, thus allowing a greater percolation capacity than would otherwise be possible.
4. The vegetation increases the humus content which in turn increases the porosity of the soil and results in a greater percolation and holding capacity.
5. The vegetation spreads out the run-off by the inter-position of leaves and stems, which results in less erosion and run-off than would otherwise occur. The debris of dead vegetation furthers this action by piling up against the live vegetation, thus acting on the principle of minute check dams and terraces.
6. The leaves and stems of vegetation tend to reduce the soil material content in water which increases its ability to percolate into the soil.
7. The root systems of vegetation tend to bind the soil together which reduces the amount of erosion taking place.

Los Angeles County has about twenty-five of the larger watersheds of southern California ranging from 25 to 200 square miles individually but has many hundreds of small watershed areas ranging from 1 to 5 square miles each.

On the larger watersheds flood control and conservation requires artificial structures such as regulating dams in addition to the protection afforded by the natural forest cover. In the smaller individual watersheds of from 1 to 5 square miles each, the treatment for

flood protection and conservation is more difficult and very expensive, and in these cases, as a practical matter, dependence must be largely placed upon preservation of the natural cover as being the best and most feasible solution of the problem.

The Flood Control District maintains an emergency fund under which check dams can immediately be constructed on such an area which has been denuded by fire, but the fullest possible number of such structures cannot duplicate the protection afforded by the natural vegetation. This is particularly true where "sheet erosion," or land slips, from large areas may occur.

On a burned-off watershed it is not uncommon to have 25,000 cubic yards of debris from one square mile of burned-off area. This is equivalent to about fifteen and one-half acre feet. When it is realized that the average cost of providing storage in our mountains is over \$200.00 per acre foot, the economic importance of preserving the natural cover to prevent the filling up of valuable storage space is evident.

Fire, one of the most destructive forces to all vegetation, can immediately turn a natural water basin of vegetation-covered slopes into an area whose potential possibilities of damage and destruction if a heavy rain follows, are only limited in extent by the values of real and personal property below the outlet.

The removal of debris from our streets and roads, including the hauling away, averages \$1.00 per cubic yard.

The district estimates that within the areas not now fully protected there lies property valued at \$300,000,000. The extent to which this property is subject to destruction will depend not only upon the amount and rate of rainfall in a major storm but also upon the condition of the watershed cover. A major amount of destruction will occur should a major flood happen within two years after a major fire.

That the run-off increases following a severe fire and water percolation and conservation decrease is well evidenced by many experiments and field observations. The results of an experiment conducted by the California Forest Experiment Station on a chaparral-covered plot and on a burned-off plot located in the San Bernardino National Forest showed that during the season of 1927-28 the ratio of run-off from the brush-covered plot to that from the burned-off plot was 1 to 3.7. This ratio however, during a storm of 4.34 inches, when a maximum rate of rainfall was reached, amounted to 1 to 66.5. The rate of erosion was also determined to be 1 for the brush-covered plot against 18.1 for the burned-off plot.

An experiment conducted by the Los Angeles County Flood Control District this year on a model watershed of an area at first covered with brush and then burned-off gave, for a rate of rainfall of 1.36 inches per hour, a run-off equal to 0.42 inches per hour for the brush-covered area and 1.01 inches per hour for the burned-off area, a ratio of 1 to 2.4. The rate of erosion for the brush-covered area was 400 cubic yards of debris per square mile against 12,000 cubic yards of debris per square mile for the burned-off plot after an hour's run, a ratio of 1 to 30.

That a severe fire on even a very porous-soil mountain area can produce damaging floods is evidenced by the storm of 1914 and its effect on Haines Canyon, in the Sierra Madre Mountains. In 1913 this watershed of 1.2 square miles was burned over very severely. The ashes filtered down and sealed up the pores and fissures in the ground.

Thus artificial measures taken by man to conserve water are, because of the vast detrital flow following a severe burn, susceptible to rapid silting up and covering over with a consequent loss of effectiveness. Every dollar expended for water conservation works is therefore jeopardized by fire.

Spreading grounds as a method of conserving flashy peak flows and returning them to the vast underground basins in our alluvial plains has been adopted by many conservation bodies as the cheapest and most efficient way that man has yet devised of building up our

water table. The principle of spreading grounds is based upon the ability of these alluvial deposits to absorb water at a feasible rate of percolation. The average run-off from brush-covered mountain areas is free enough from silt by the time the water reaches the spreading grounds so that percolation takes place by keeping the water moving enough to scour the channels of the spreading system. The immediate and great increase in detrital matter brought down following a severe burn could not be taken care of before reaching the spreading grounds. The result would be an immediate clogging up of the openings in the surface of the spreading grounds and a consequent reduction and eventually complete elimination of any percolation.

Any one, therefore, who is interested in water conservation should be vitally interested in protecting to the utmost the most valuable ally we have to the conservation of our water supply—our chaparral and tree-covered slopes.

A GOOD NAME !

By E. N. Munns, Washington

(Continued from November 21 issue)

Previously an effort was made to depict the situation with respect to the names of various subdivisions of our National Forests. But if an effort in the direction of better National Forest names is taken, should we not go one step further and correct the present tendency to apply meaningless names to other features with which we deal. I think it worth while and highly desirable.

Let us see what we have in the way of names for our streams. Let us take a Forest, almost any Forest, and list the smaller streams. What do we find? We find some names repeated several times. Among them can be noted Bear, Deer, Elk, Tamarack, Willow, Cedar, Pine, Alder, Deep, Clear, Boulder, Eagle, Fish, Trout, Twin, Gold, Rock, Mill, Indian, Squaw, Trail, Bridge, Cabin, Horse, Devils - but what's the use of repeating them. If one or more of the above don't occur twice on your Ranger District, you are lucky. If they don't occur in duplicate on your Forest, you sure are lucky.

Let us look at the mountains, perhaps things will be different, but no. We find Deer, Bear, Elk, Tamarack, Cedar, Pine, Fish, Trout, Twin, Gold, Snow, Sheep, Devil, Sunset, Lookout, Bald, Sugarloaf, Round, Granite, Iron - but what's the use.

Let's try the Lakes. If you have some, you will find among them --- Boulder, Clear, Dry, Mirror, Blue, Pine, Gold, Devil, Beaver, Buck, Bear, Diamond, Round, Twin, Indian, Squaw, Fish, Trout. Perhaps we should try the springs. Strange to say, we find them bearing the familiar names, Deep, Cold, Warm, Clear, Indian, Squaw, Deer, Rock, Box, Big, and so on.

Why has such a condition developed? Why do we find ourselves repeating over and over again names that have lost their significance? Is it because our vocabulary is limited? Perhaps it is indifference. Some one just has not taken the trouble when naming a stream, a glade, a mountain, or even a trail, to search for or to hunt up names that are colorful, that are distinctive, that are meaningful.

True, many names have been given to geographic features by the early residents, but as we build our trails and roads, as we prepare our maps, as we develop our Forests, we have the opportunity, in fact, we have an obligation to attach names that will adequately set apart the feature we are naming from all others.

It is of course difficult to change names in common use, but that seems no valid objection. We change names of countries and except for some confusion for a year or two, the name is soon adopted. We change the names of our cities, our counties, and once in a while the name of a National Forest, but, after we once get used to the change, the new name comes easy.

Of course, the Geographic Board makes the job more difficult. This is as it should be, for there should be some central agency to prevent constant change of geographic names, and it helps bring about order. Unfortunately, the Geographic Board did not begin to function early enough, hence many senseless and confusing names. Undoubtedly, however, the Geographic Board would welcome some changes, for if you have a Clear Creek on your Ranger District you can almost be assured that there is also one on every other. And if anything in your District is called Devil you can be assured that there are at least seven other Devils in the vicinity, all of them bad.

What can be done? Lots of things. Let's first make sure that before giving a meadow, a creek, a lake, a camp ground, or any other place a name, that we first determine whether the name fits, whether it is distinctive, whether it is really appropriate and unique. Perhaps the best way would be to have all new names subject to careful review, first in the Supervisor's office and then in the R-O. Only by some systematic effort can we avoid some duplication of meaningless names.

For the old ones, perhaps as a new map of the Forest is prepared we could make a beginning. New names could be substituted on the map and as these are approved, signs and posters could follow. Near centers of population some names are used by thousands of people and such names can be changed with more difficulty than on some Forest where names mean comparatively little. Yet, it can be done. All it takes is foresight, and we should be ready with new names, unique names, and really distinctive names against that day when your Forest will have a new map that does not repeat monotonously the names in the other man's backyard.

YE EDITOR DISCOVERS

By Decision of October 25 the Comptroller General reversed his former rulings relating to automobile mileage between the hours of 3 a.m. and 6 p.m. of the same day. The earlier decisions had the effect of applying to auto mileage the same rule that has obtained for 5 or 6 years with respect to subsistence during similar short periods of absence from headquarters.

In the recent ruling the Comptroller states: "Further consideration * * * induces a doubt that the construction heretofore made was correct." He adds that "transportation expenses away from the post of duty on official business may legitimately occur when no travel status for subsistence purposes exists," and stresses the fact that the universal automobile mileage act of February 14, 1931 (on which his previous adverse decisions were based), deals with transportation rather than subsistence. This decision is of particular importance to the Forest Service, especially to the ranger personnel, as it restores the allowance of 8 to 6 mileage and short trip mileage at other hours to the same status as existed prior to the adverse rulings. It will be necessary to continue filing statements with reimbursement accounts to the effect that public facilities are not available, or in cases where such facilities are available to show the economy and public advantage growing out of the use of the privately owned car. The October 25 decision has no bearing on the long established rule that subsistence on trips wholly between the hours of 8 and 6 is not allowable.

The change in the General Accounting Office attitude is of particular interest at this time, because of a suit filed a few months ago in the Supreme Court of the District of Columbia by a Region 7 ranger to compel allowance by the Comptroller of automobile mileage on short trips made by him away from headquarters between 8 a.m. and 6 p.m., where either public facilities were not available or the use of his privately owned automobile at mileage rates was more economical and advantageous to the Government. A hearing was held on this suit about November 15 but no decision has as yet been rendered by the court. It is expected that the ruling will be favorable to the plaintiff.

A further side light on the mileage question involving short trips is that in the pending revision of the uniform travel regulations resulting from the Economy Act of June 30 last, the Comptroller has strongly urged upon the Director of the Budget that the regulations be so drawn as to prohibit mileage allowance within 5 miles of the traveler's office or living quarters. He offered specific language for this purpose for insertion in certain sections of the regulations. This proposal was considered by the Inter-departmental Committee, which functions as an advisory committee to the Budget Bureau in determining upon the subject matter and scope of the travel regulations. The committee met on November 16 and unanimously recommended against the Comptroller's proposal. Mr. Headley appeared at the meeting and discussed the Comptroller's recommendation from the point of view of the field work of the Service. It is the general belief that the recommended amendment will be rejected by the Budget, but it is premature as yet to make a positive statement to that effect.

The controversy over settlement of the Fish Creek Desert area on the Umpqua National Forest, Oregon, is, it is hoped, approaching a close. This area, located at the head of the Umpqua River, at one time supported an extensive stand of timber, which, however, was largely depleted by fire a quarter of a century or more ago. Hence the name "Fish Creek Desert." The soils are largely the pumice type characteristic of that region, and, while capable of producing fair stands of timber, seem to be wholly incapable of profitably producing any agricultural crop. Although fairly successful farming operations have been conducted at slightly higher elevations in other parts of Oregon, the climatic conditions on this area apparently are wholly adverse to worth-while agricultural activities. Until recently the area was quite inaccessible, but new road construction makes automobile travel quite feasible, and in course of time the unit will be traversed by a forest highway. After very detailed and careful study the whole area was classified as non-agricultural and non-listable.

Some five or six years ago a Spanish War veteran by the name of Emery Davis and a World War veteran by the name of E. H. Best decided that the Fish Creek Desert offered attractive possibilities for homesteading and colonization. Both enjoyed pensions and consequent partial immunity from the financial stresses to which homesteaders normally are subject. Their applications for the listing of the lands were disapproved, but notwithstanding this fact they proceeded to occupy the lands and make some very limited pretense of cultivation. In addition, they inspired a number of other people to similar action.

Efforts to dissuade them proving ineffective, legal action was instituted, and both were arrested. Upon their pledges to refrain from further trespass they were released. Despite these pledges they immediately initiated a still more active campaign of colonization and, together with several other misguided followers, reoccupied the lands. Again the law was resorted to and Best and Davis were arrested. Again they pledged themselves to refrain from further trespass, and again were released without penalties other than the time spent in jail pending the hearing of their cases. During this period question was raised as to the sanity of Davis, but the alienist who studied Davis's case did not feel that his restraint was necessary.

Meanwhile sentiment was intense in Roseburg and its vicinity. New recruits were constantly being secured, mass meetings were held, letters and appeals were sent to members of Congress, detailed editorials appeared in many papers, and every effort was made to arouse public sentiment. This, however, was not wholly successful, as people familiar with the local situation largely recognized the soundness of the Forest Service position.

This year Best and Davis, together with three associates known as Edgar Martin, Day, and Green, again occupied the lands in question. Again the law was resorted to and their arrest followed. This time the judge, recognizing their previous violations of pledges, ordered a verbatim report made of his sentences with the statement that it would constitute

a part of the record of the case and thus avert any further misunderstandings as to the nature of the sentences. Having thus defined his position, the court proceeded to sentence Davis and Best for periods of two years and Edgar Martin for a period of one year and one day in the United States Penitentiary. Defendants Day and Green were each sentenced for a period of six months to such road camp as may be selected by the Attorney General of the United States. All five defendants were, however, placed on probation for a period of five years and required to report to the parole officer during such probationary period. With these definite sentences hanging over them, it is believed that the five defendants will refrain from any further attempt to trespass upon the Umpqua Forest and that their cases will be examples and warnings to any other intending trespassers.

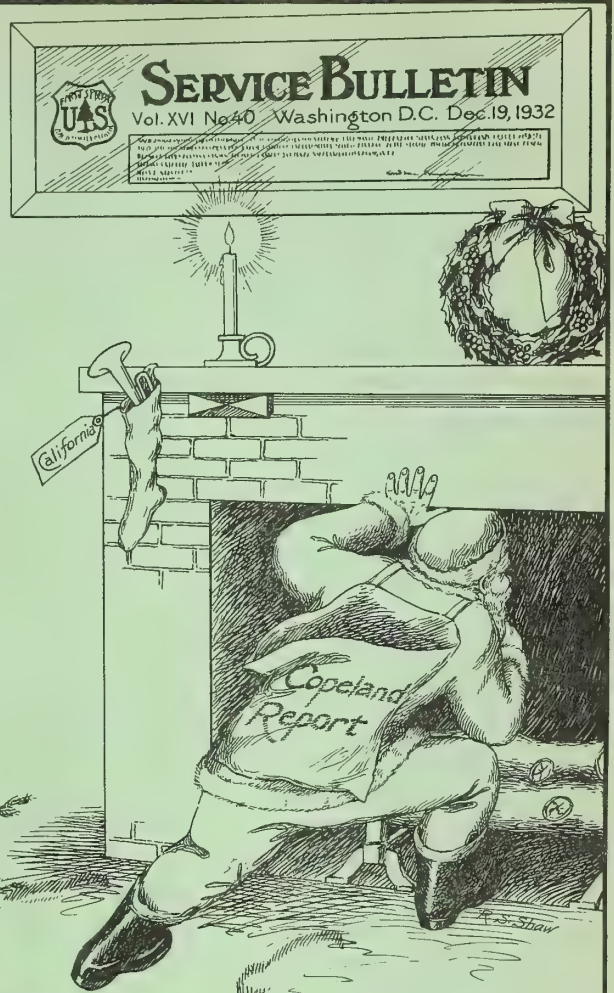
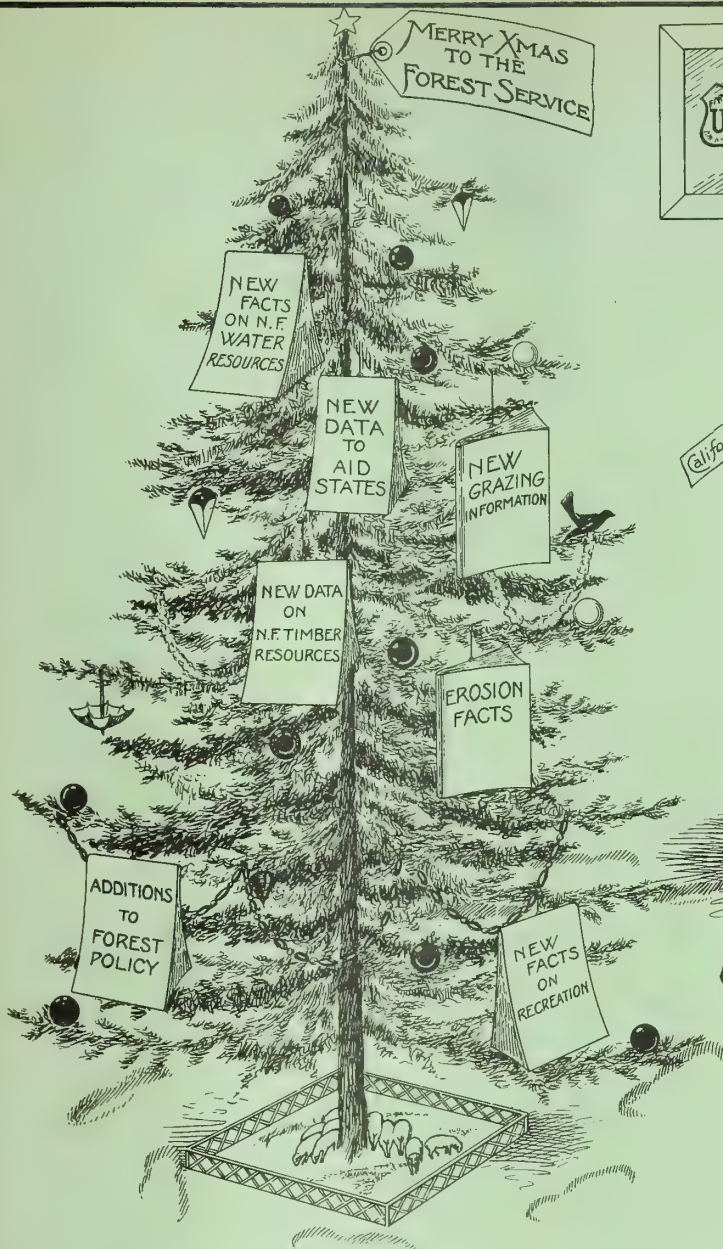
The California Forest Experiment Station has tentatively selected several drainages on the Angeles Forest where it is planned to initiate a very detailed and exhaustive study of chaparral cover and streamflow relationships. Of these drainages, three small watersheds will be finally selected on which stream records will be obtained over a considerable period of years. The eroded material will be caught and measured. One area will serve as a check; the other two areas will be burned. One of the burned areas will be allowed to return to its normal cover condition, while the other will be kept as denuded as possible. After the cover on the first burned area has returned to a condition very similar to what it was at the beginning of the study, the original unburned area will be burned. In this way it is hoped to obtain data on just what happens after denudation. In view of the importance of the project, it has been deemed necessary to get the best advice possible. Accordingly, plans are under way for a conference this winter of a group of those experienced in erosion-streamflow studies. This group will select the areas and will review the plan of work to be followed. It is expected that members of the Lake States, Intermountain, and Southwestern Forest Experiment Stations will participate in the discussions. Professor Bailey of the Utah Agricultural College has also been invited to attend the conference.

The annual meeting of the Society of American Foresters will be held in San Francisco December 12-18. Field trips will be made, on December 12-13, to the Sierra and redwood regions and, on December 17-18, in Southern California out of Los Angeles. The papers will be presented and business session held on December 14-16. The major theme of the program this year will be re-evaluation of American forestry.

CHANGE IN DEPARTMENT DISBURSING OFFICER

After more than 26 years of faithful and effective service as Chief Disbursing Officer of the Department of Agriculture, Mr. A. Zappone is retiring November 30 from active duty in that post. His old friends in the Service will be glad to learn that the Secretary has designated William R. Fuchs to succeed to the place. Mr. Fuchs has been connected with the department disbursing office since 1912, in more recent years as its assistant chief.

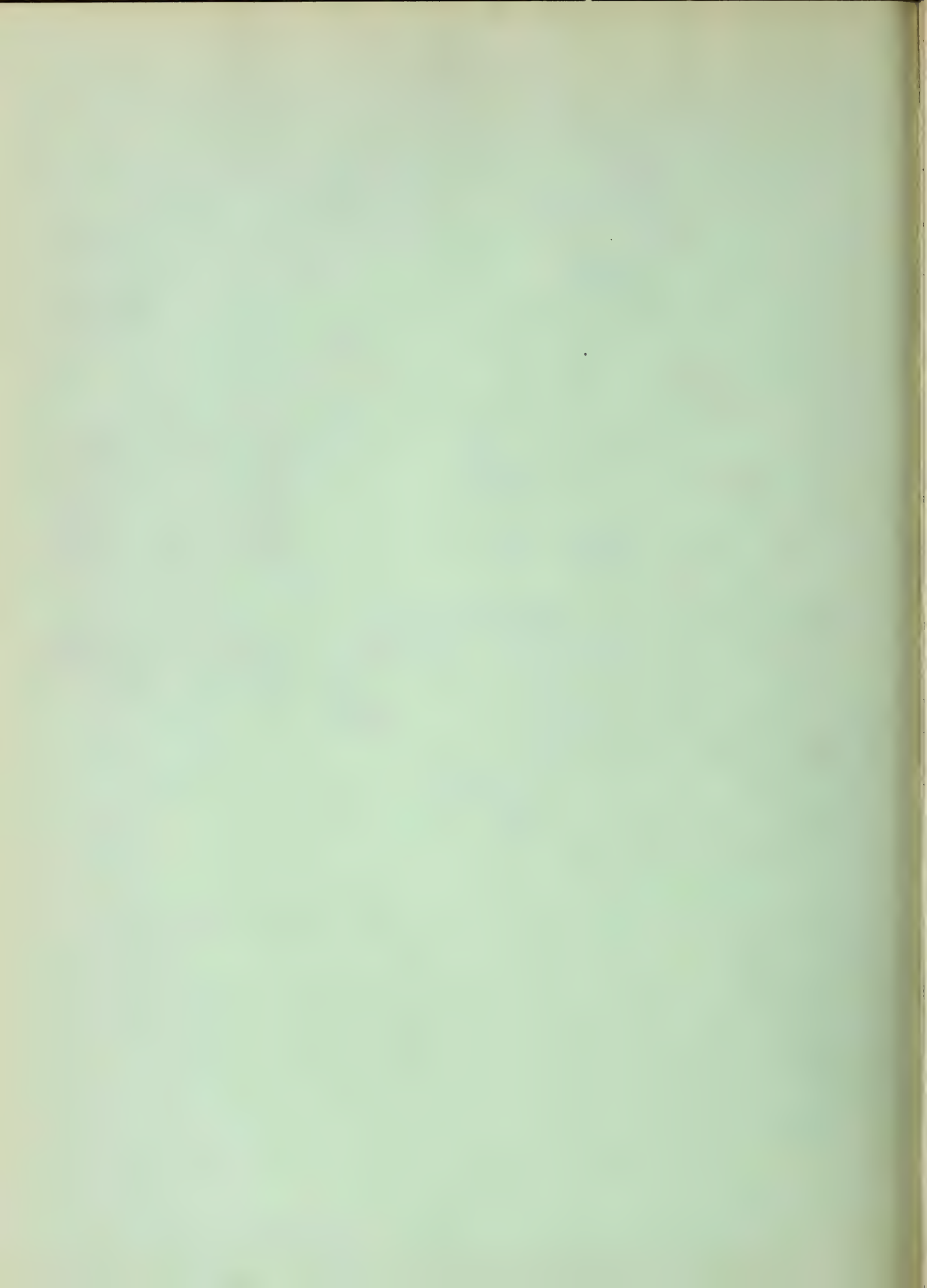
Mr. Fuchs was a member of the Forest Service fiscal organization from 1905 to 1911, most all of such service having been performed in Washington. He was detailed to the Forest Products Laboratory for 6 months in 1910 to handle the disbursing and accounting work. In 1908, when the regions were first organized, he was appointed to the fiscal agency at Denver but did not actually assume duty under the appointment. - H. I. Loving.



Life's glowing satisfactions have their roots in sincerity, kindness, high purpose, and the accomplishment of good. These qualities are the embodiment of the Christmas spirit. They find most generous expression at Yuletide.

May this spirit prevail and bring to you all a Merry Christmas and a very Happy New Year!

R. Y. Stewart



CHRISTMAS AND CONSERVATION

By E. A. Sherman

Christmas, universally beloved festival of Christendom, has a special appeal to the Forest Service. The source of this appeal lies not alone in the fact that on this day the tree, which with its service to humanity is the objective of our organization, is also the symbol of the Christmas spirit and on earth good will to men.

Nor does the source of its appeal lie in the fact that from its first years as a Government organization the Forest Service here in Washington has made a special point of observing the Christmas festival as one great family in the best spirit of the holiday, and that this custom has been followed by each of its major offices in the field from the White Mountains in New England to the Lagunas of Southern California, and from the glaciers of the Chugach in Alaska to the orchid festoons of the Luquillo in Puerto Rico.

Rather, the source of this special appeal lies in the fact that conservation, is after all, a special phase of the broader doctrine of Christianity. The former seeks to apply to mankind in an economic sense the principles of good will which the latter carries in an ethical or religious sense. After all is said and done the work of the Forest Service consists, from first to last, in service to humanity. Regulating the use of wood and forage; safeguarding the growing timber for the use of coming generations; securing the peaceful and fair division of range among contending stockmen; protecting watersheds from injury so the irrigator's source of life is also preserved; protecting the beauty of the landscape from wanton destruction or needless waste; safeguarding fish, game, and wild life, of all kinds, from the mighty moose to the liquid-throated songster meadow lark; laying out summer homes for city dwellers; planning healthful camps for ailing children. These and a thousand other activities are prompted by a desire to promote the Christmas ideal of "peace on earth and good will to men". And so long as the Forest Service continues to be guided by this impulse, so long will the work of its hands live and flourish. Realizing this, the Forest Service, on each recurring Christmas day, in spirit dedicates its service in the future to the promotion of the essentials of the Christmas spirit.

CHRISTMAS 1932

By Roy Headley, Washington

Christmas 1932 finds the Forest Service in a more cheerful mood. Many of the dire things that might have happened, have not occurred; and will not occur if present trends are to be believed. Appropriations are down and will doubtless go lower but not so low, apparently, as to cause a general breakdown. The year has witnessed widespread efforts to get a better grasp of our problems and adapt our management more perfectly to changing conditions. We are becoming accustomed to the calm but expert discussion of changes in organizations, methods and points of view which not many years ago seemed to us as unchangeable as the location of Mt. Hood. The Copeland report project is, among other things, a venture of the organization into self-education on a grand scale. From the personal interest standpoint, jobs seem more secure than they did a year ago, and the "Forest Service Family", or at least the yearlong portion of it, still has a steady income and freedom from the corrosion and despair which have settled down on so many fellow Americans. The short term mem-

bers of the family have had a double cut in pay, but there is a chance that a strong effort will be made in Congress to correct this. The effort to incite hatred of all Government employees seems to be dying down.

When we look around at what is happening to the rest of the folks who inhabit the U.S.A. we feel contentment or gloom according to whether we are socially sensitive or not. The poor are getting poorer but the rich are not getting richer. Even the well-to-do seldom feel as prosperous as they look. The ten to thirteen millions of unemployed and their millions of dependents are going from bad to worse. Our American flair for mass production seems to be expressing itself in mass production of misery and timid despair. Optimists see better times ahead but falter when they attempt to specify just what is going to bring better times about. Some authorities say that with volume of business as in 1929, half the present unemployed army would not be needed because of the efficiency of our machines. The unemployed naturally soon become unemployable. If, with this transition, they also achieve contentment, maybe the solution lies in the growth of a vast standing army of professional panhandlers.

It doesn't seem to make any difference that all this disintegration and woe exist in the midst of an apparent oversupply of practically every known commodity required for human comfort. The greater the oversupply, the greater the woe, seems to be the way things work.

It is this topsy turvy world to which we must attempt to adjust our timber land management project and our personal thought and feeling. If we can ignore what is going on around us we may enjoy a merry Christmas. If we cannot, about the best we can do is to try to understand it all, so that if opportunity presents itself we can do our bit in freeing the millions of our fellow men and women and children from their crushing burden of woe.

OPPORTUNITY

By L. E. Kneipp, Washington

Since it first took form in the minds of Gifford Pinchot and his associates, the Forest Service has been motivated and dominated by the concept of broad and unselfish human service, the advancement of all desirable social objectives, the collective welfare of all the people rather than the profits of the few, the safeguarding of the future rather than blind exploitation of its heritage for current extravagance. It has demanded of its members unselfishness, loyalty, courage, knowledge, clear vision, honesty, understanding, organizing ability and public confidence. The fact that the members generally have met those demands is commonly attested by all who are familiar with the accomplishments of the Service. All of which creates a question as to the part and place of the Forest Service in the new era now dawning upon the nation.

Too few recognize the profound changes now taking place in our social order. Drastic modifications are occurring in all hitherto prevailing standards of value; not alone the values of stocks and bonds, of monetary values but also of spiritual values the values of men and women, of social and political and economic institutions; of lands, of forests, of many of the things hitherto regarded as assets. People are uncertain and disturbed, sensing vaguely the need for sweeping reorientations of present concepts but without clear understanding of what the changes should be. Regardless of theory or creed or party a new order of social readjustment is in the making.

Probably the greatest boom humanity has ever enjoyed has been that of wise leadership.

Magically it has enabled people to meet and overcome adverse circumstance, to reshape in new and better forms the factors dominating human progress, to advance their destinies to apparently unattainable goals of human achievement. And not always has the leadership been that of super men in high places; more often it has been that of men previously unmarked by fame or power. Periodically the world has passed through crises such as that now gripping it. Each has meant a shattering of cherished myths and old traditions and formulae; a blind groping toward more workable and equitable principles and programs; a groping that seemed helpless and hopeless until guided by clear-headed men who saw the problems understandingly and worked for their solution unselfishly. Without such men the toll of human suffering and sacrifice, heavy as it has been, would have been infinitely greater.

No greater opportunity for service has ever before presented itself to the Forest Service. The National Forests, forest lands generally, the forests on those lands, the lands and industries dependent on the related use of forests and forest lands, the people and communities that exist by reason of such lands and industries, are all prime factors in the complicated equation now pressing for solution. Inescapable obligations of leadership rest upon the men and women who have dedicated their lives to forestry. The redemption of those obligations should not be narrow or partisan; forestry should not be regarded as a narrow function of producing so many cubic feet of wood per acre, but rather as a broad agency for the promotion of human welfare with an intimate relationship to the whole wide field of land economy as it influences social and political economy. It will be interesting to observe, a decade or more from now, how fully the present generation of foresters and particularly the present membership of the Forest Service availed themselves of this unusual opportunity for creative and constructive service.

FOREST CANOPY LEFT AFTER LOGGING REDUCES FIRE DANGER

By H. T. Gisborne, Northern Rocky Mountain For. Exp. Sta.

Every timberland owner knows that if he cuts most or all of the trees on an area he lets in the sunlight and the hot drying winds which the dense forest canopy excluded. Few, however, appreciate the effect of such openings in causing drier fuels and higher inflammability and in creating a danger which threatens not only the remaining forest growth but also the surrounding timber, adjacent buildings, and other property. The owner may have noticed on previous cutting areas that the removal of some of the canopy endangers regrowth, by exposing tender young seedlings to the excessively high temperatures of full sunlight, by producing sun-scald and cat-face on saplings and poles, and by drying out the ground so that new seedlings will not be able to obtain sufficient moisture to survive the period of maximum drought. He has probably not measured these conditions; he only knows that there is great danger of fire on such areas.

Measurements recently made at the Priest River branch of the Northern Rocky Mountain Forest Experiment Station show the extent of that danger and also indicate that it is possible to cut timber without incurring these after effects. This can be brought about by the so-called selection method of cutting which removes the merchantable and undesirable trees in the stand yet retains enough crown canopy to shade the ground and the mat of leaves and twigs covering it. This shade is the best insurance that the soil moisture will be sufficient for seedlings and that the dead leaves and twigs on the ground will not become extremely dry and inflammable.

The following measurements were made at three stations, one fully timbered, one with half the forest canopy removed, and one clear-cut, only a few hundred yards apart in a northern Idaho valley bottom.

Factor measured	Fully timbered Area	Half- cut area	Clear- cut area	Difference between (1) and (3)
	(1)	(2)	(3)	(4)
Average maximum air temperature (degrees F.)	83.9	86.9	90.6	6.7
Average relative humidity at 5 P. M. (per cent)	23.4	19.0	16.8	6.6
Average wind movement (miles per day)	2.0	24.8	49.6	47.6
Evaporation rate (grams per period)	34.7	93.4	206.7	172.0
Average maximum temperature just below surface of duff (degrees F.)	78.8	93.6	133.3	54.5
Highest duff temperature (degrees F.)	85.0	102.0	148.0	63.0
Average moisture content of duff (per cent)	10.5	9.9	4.6	5.9
Average moisture of 2-inch-diameter dead wood (per cent)	8.3	7.2	3.8	4.5

One of the most striking features in this tabulation is the extremely high temperature of 148° F. measured just under the surface of the dead leaves and twigs forming the carpet of duff covering the mineral soil. At the surface of the duff, in the full blast of the sun, the temperature may have been even higher than 148°. As surface temperatures above 120° to 125° F. are recognized as dangerous to young seedlings, and temperatures of over 140° are generally fatal, the danger in such exposure to the sun is very clear. Under the partial shade of the trees reserved from cutting, however, the temperature rose to only 102°, while under the almost complete shade of the undisturbed forest the maximum temperature in the duff rose to only 85°, or 1.1° above the highest air temperature recorded.

These conditions illustrate the effect of the tree crowns in absorbing direct sunlight and thereby preventing high temperatures in the ground and in the fields on the ground. Air temperature, humidity, evaporation rate, and wind movement, other factors which make for drier fuels and faster spread of fire, were all improved by the presence of the crown canopy.

It is also evident from the measurements that removing half the timber canopy in order to log the merchantable trees and remove those diseased or otherwise defective did not result in drying out the site to the condition halfway between full-timbered and clear-cut. The measurements on the half-cut area resemble those for the fully timbered more than those for the clear-cut. In other words, although half the crown canopy was taken out the danger was not increased proportionately.

One important fact should be brought out here: burning of debris must be done with extreme care in order to save all of the green canopy left after logging. If the burning is done at the wrong time of year or debris is burned broadcast rather than in piles, all the beneficial shade will be lost and the areas, fully exposed, will, after all, become a fire menace.

RECENT FOREST STUDIES DISCOVER NEW NEEDS

By Roy E. Miller, Washington

The evolution of forestry appears to have gained new momentum from the Forest Survey and the studies initiated by the Copeland Resolution. Long months of delving into the whole forestry problem bring to the surface many new needs, and a few old conclusions are lost in

the debris. Under the stimulus of new information and ideas, the forest worker is sure to gain in incentive to know the job and do it well.

Changing conditions and emergencies which now challenge the constructive capability of American forestry are called to attention by Chief Forester Robert V. Stuart in the Report of the Forester for 1932, just issued. Some unsettling things have been discovered. Some missing gaps in information about forest resources, use waste, and recovery have been supplied by the surveys. Measures and forest policies in the future will have the advantage of being based in part upon these discoveries.

Building upon the great work done in forestry in recent decades, forestry of today and the future is being rounded out to meet more varied demands and to serve needs that arise incident to local and national progress. Greater emphasis upon balancing forest use to forest resources, upon quality of the product rather than the acreage of the woods, upon maintaining recreational and flood protection values, and upon encouraging private forestry on the farms and in commercial timber holdings is predicted by Forester Stuart. He advocates more cooperation in public policies with reference to the whole forest situation, and at the same time, more determined protection of public interests.

One of the striking discoveries growing out of recent surveys and collection of information is that after centuries of shrinking acreage, the forest area in the United States is actually increasing, and now comprises about 496,000,000 acres. The increase is due in part to recovery of some of the cutover lands and to poor pastures reverting to forest growth. The gains, however, are offset in part by shrinkage of farm woodlands under pasturage and drought in some States. The Forester also points out that much of the new forest growth is of inferior species, and that much of the forest itself, for one reason or another, cannot soon be counted on in meeting the national needs for lumber.

On 186,000,000 acres, or more than one-third the forest area of the United States, the growth is below cordwood size, much of it brush or scrub. And 60,000,000 acres more are denuded by fire and bad-logging practice. The part these lands are to play in the national economy, is a problem facing the general public as well as the Forest Service. A consistent forest policy is necessary to determine the best use of these lands.

"In comparison with the need, far too little is being done to facilitate and encourage private forest management; public policies of forest acquisition and administration are still exceedingly inadequate; and public restraint of injurious private practices through regulatory requirements has barely begun," the report said. "While policies and measures designed to promote conservation have had some effect on the balance, they have been insufficient to offset the powerful and relentless pressure of economic forces created by the pursuit of private profit. These offsetting public policies are being enlarged, but not adequately, and a demand is now developing for diminished public activities, in the name of economy and on the ground of overexpansion of Governmental function. The lumber industry, itself, in the grip of economic forces which it appraises as beyond its own power to control, is seeking public aid. It desires this for the purpose of obtaining a better balance between its output and markets and lightening the burden imposed by overinvestment and overexpansion. The lumber industry realizes that if public aid having any prospect of adequacy for its effective relief is to be forthcoming, this aid must comprise measures designed not solely for the stabilization of the industry, but designed also to stabilize the basic situation and the forces which are leading on to still greater unbalance in the adjustment of forest use to the forest resource."

Meantime the private owners of 270,000,000 acres of timberland, with some notable exceptions, have not been convinced that it will pay them to keep their lands permanently productive. After them, too often, comes the deluge, or at least the fire and the flood.

They hold much of the best timber, as well as some of the badly denuded and non-restocking land. They are not prospering, and their properties and the public interest suffer. Can the return of prosperity for them be hitched to a better forestry program? When the facts from the surveys come in, it seems there ought to be enough logic available to convince a logger.

GRAZING IN QUEENSLAND

By C. E. Rachford, Washington

"Not only do some of them want additional areas for nothing, but they want to pick the areas, define the boundaries, and then fix the rents, while ignoring the rights of others. This attitude, of course, the Board cannot support." Upon opening a pamphlet that came across my desk the other day, this quotation caught my eye. On further examination, the pamphlet proved to be the first Annual Report of the Land Administration Board of Queensland, Australia, for the six months from the first of February to the 31st of July, 1928. This report is printed in large type, on excellent paper 8" x 13", and contains 177 pages.

My interest was further aroused when I read that Queensland contains more than 429,000,000 acres, of which less than six per cent is alienated. The remaining 94 per cent of the land remains under the control of the Department of Public Lands and associated departments or has been dedicated to roads, reserves, etc.

A "living area" of grazing lands is defined as such an area as would permit a lessee to -

- "(a) Carry sufficient sheep or cattle from which a reasonable income may be obtained and a reasonable reserve be available to assist such selector over drought or dry periods without the necessity of seeking assistance from the Government;
- "(b) Maintain both quality and quantity of wool or beef, as the case may be, so that production and revenue direct and indirect from Crown lands may not diminish;
- "(c) Make necessary improvements on the holding without overcapitalizing it, so that such holding may be worked as a sound economic proposition."

Following this definition appear the following factors and circumstances which should be taken into consideration:

- "(d) Nature of country, carrying capacity, distance from railway and markets;
- "(e) Nature and cost of necessary water improvements and facilities, and of other improvements required or considered necessary to develop the potentialities of such land;
- "(f) The income that a prudent tenant may reasonably be expected to make from such holding;
- "(g) Such other factors and circumstances as may be thought just and proper."

That sounds like range appraisal.

My curiosity having been aroused by these statements, and constant reference to the Crown Land Act of 1884, that Act was reviewed and some interesting information brought to light. The Act defined the areas that could be leased under the various forms of leases, the tenure of permit and the rent to be paid. The Act stated specifically:

"In determining the rent, regard shall be had to

- "(a) The quality and fitness of the land for grazing purposes.
- "(b) The number of stock which it may reasonably be expected to carry in average seasons after a proper and reasonable expenditure of money in improvements.
- "(c) The distance of the holding from railway or water carriage.
- "(d) The natural supply of water and the facilities for the storage or raising of water.
- "(e) With respect to the rent of the second and third periods of five years, the relative value of the holding at the time of the assessment as compared with its value at the time of the commencement of the lease. Provided that in estimating the value, any increment in value attributable to improvements shall not be taken into account."

That was in 1884, and again it sounds like range appraisal.

The Act, however, went on to provide penalties in the event of failure to pay the rentals. If they were not paid within 90 days of the date specified, the lease was forfeited; if rent was paid within 30 days, 5 per cent was added; if paid within 60 days, 10 per cent was added; if paid after 60 days, 15 per cent was added.

Another interesting phase of the Act was to the effect that if in the opinion of the Board any lessee is injuriously using the land by overstocking, the Board may require him to reduce the number of stock. If he fails to do this within six months, his right of depasturing may be forfeited.

This Act further provided for the cutting of timber for domestic use and driveways, but cattle, horses, and sheep must be driven at least six miles per 24 hours. Violation of driveway privileges was subject to a fine of £ 20. "Any run forfeited before expiration of lease to be sold at public auction for the remainder of the term. The 'upset' shall not be less than 10 shillings per square mile, and the highest amount bid shall be the annual rent to be paid for the residue of the term."

The lease provided that the selector must within three years enclose the land with a good substantial fence and allows for the agricultural farm a term of 50 years and for a grazing farm 30 years. Rent for each five years after the first 10 years was determined by the Board. The lessee or his manager must occupy the land continuously and bona fide during the term of the lease, and the lease must be in the interest of the lessee and not another person or persons. Proof that the stock of any person other than the lessee are ordinarily depastured on a holding shall be prima facie evidence that the lessee is a trustee of the holding for the owner of the stock.

All minerals and the right of prospecting for same were reserved. Rangers or bailiffs were to be appointed by the Governor in council, and the Governor authorized to make regulations, "such regulations, not being contrary to the provisions of this Act, shall have the force of law." (Sounds familiar).

Going back to the report, it is evident the Land Administration Board has had problems and difficulties similar to those experienced by the Forest Service. For example, the Board is urged by "popular clamor" to make land available in areas that are ruinously small or otherwise economically unsound. It has further determined that a living area is one which will support 5,000 to 6,000 head of sheep.

In discussing the rent question, the report shows "there has been in Queensland a tendency to make rents reflect the passing conditions of the moment. In a bad season they might be low; at a time of good seasons and prices they might be high. Again, when properties are changing hands at high figures, excessive rental claims might be made, and so on. All that we conceive to be wrong.

"Rents for grazing selections are fixed for seven-year periods. All holdings, however, do not come up for re-assessment at the one time. Thus, if the conditions of the moment are allowed to unduly influence rent fixations, the result is that entirely different rents are fixed on blocks of uniform country, according to the different circumstances at the time of assessment. That is what has happened in the past, and that is what it is the duty of the present administration to avoid. Common sense demands that similar country in the same neighborhood should be rented at similar rates.

"..... The corollary of very low rents in a bad time is very high rents in a good time. Thus graziers would never know what their rental position was likely to be, and a large element of insecurity and uncertainty would be introduced.

"A policy of moderate rents, not merely for the moment but during the whole currency of the leases, seems to us to be the wiser and safer course. Rents will not then follow the fluctuation of the industry, and Crown tenants will be encouraged to lay by a sinking fund in good times to meet the inevitable dry years that will follow. The collection, at all times, of reasonably adequate rents rather than full rental values should be the object of the Crown."

Many years ago the Legislature seems to have established the principle that "rents should be fixed according to the amount which experienced persons would be willing to pay for land of similar quality in the same neighborhood." The report indicates that the principle is sound in theory but unless great care is exercised can become very mischievous in its application and points out how it might be carried to extremes.

Contrary to the principle laid down in the original Act of 1884, the report shows that the Department does not intend to regulate stocking of the range from time to time. A Crown tenant is allowed to use his discretion to the full in varying the number of sheep carried on his selection.

The report makes constant reference to rangers or bailiff, and it seems the United States is not the only country that has its commissions. Queensland has rabbit commissions, marsupial commissions, prickly pear commissions, etc. It also has prickly pear wardens. (I hope the Southwest does not get the idea that they need a new title.) The records indicate that 24,407 miles of rabbit proof fence have been constructed.

While the report has very little information on the character of the vegetation, the comments by Commissioners show considerable trouble with noxious weeds such as Scotch thistle, various burs, arsenic buds, and that poisoning of these weeds has been carried on for a number of years. Control of the prickly pear is secured by the introduction of the Cochineal Insect and the boring caterpillar, Cactoblastis cactorum.

It is evident that the Land Administration Board has difficulty with the politicians, especially with relation to the collection of rents, and the Board re-emphasizes that "when a policy of moderate rents is deliberately adopted by the administration, it follows that there should be no marked fluctuations in rent according to passing conditions. Moderate rents mean that the bad times are considered with the good times, and a fair average arrived at.... Rental moderation with stability, not rental see-saws is needed."

More on the Queensland situation will appear in a later issue.

5

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